District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: DKS Transport LLC	OGRID: 330167
Contact Name: Josh Moser	Contact Telephone: 405-517-2408
Contact email: jmoser@dkstransport.com	Incident # *(assigned by OCD)*
Contact mailing address: PO Box 1084, Alva, OK 73717	

Location of Release Source

Latitude 32.70417 Longitude -104.21184
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: DKS Truck Rollover Spill	Site Type: Intersection of HWY 206 and HWY 235
Date Release Discovered: 12/11/2018	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
G	31	18S	28E	Eddy

Surface Owner: ☒ State ☐ Federal ☐ Tribal ☐ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☒ Crude Oil	Volume Released (bbls) 10-12	Volume Recovered (bbls) ~6
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Tanker truck roll-over on HWY 235 (Curry Comb Rd) just before intersection with HWY 206 (Illinois Camp Rd). Roll-over resulted in approximately 10-12 bbls of crude oil spilled onto the ground west side of HWY 235.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☒ The source of the release has been stopped.
☒ The impacted area has been secured to protect human health and the environment.
☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: _____Josh Moser_____ Title: Manager DKS Transport_____

Signature: _____ _____ Date: _____6/13/2019____

email: _____jmoser@dkstransport.com_____ Telephone: _____

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	>100 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☒ Yes ☐ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
☒ Field data
☒ Data table of soil contaminant concentration data
☒ Depth to water determination
☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
☒ Boring or excavation logs
☒ Photographs including date and GIS information
☒ Topographic/Aerial maps
☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
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Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: _____Josh Moser_____ Title: _Manger DKS Transport_____

Signature: _____ _____ Date: ___10/9/2020_____

email: _____jmoser@dkstransport.com_____ Telephone: _____

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

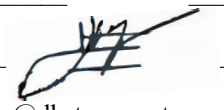
☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Josh Moser Title: Manager DKS Transport

Signature:  Date: 10/9/2020

email: jmoser@dkstransport.com Telephone: _____

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

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LT Environmental, Inc.
3300 North "A" Street
Building 1, Unit 222
Midland, Texas 79705
432.704.5178

October 9, 2020

New Mexico Oil Conservation Division
District 2
811 South First Street
Artesia, New Mexico 88210

RE: Closure Request
DKS Transport Truck Rollover
Spill Date December 11, 2018
Eddy County, New Mexico

Dear Mr. Bratcher:

LT Environmental, Inc. (LTE), on behalf of DKS Transport Trucking, LLC (DKS), is pleased to present the following Closure Request detailing site assessment, soil sampling, and remediation activities at the DKS Transport Truck Rollover (Site) located in Unit G, Section 31, Township 18 South, Range 28 East, in Eddy County, New Mexico (Figure 1). The purpose of the site assessment and soil sampling activities was to confirm the presence or absence of impacts to soil by a release of crude oil at the Site. Based on field observations, field screening, and subsequent confirmation soil sample laboratory analytical results documented in this Closure Request, DKS respectfully requests no further action (NFA) for this December 11, 2018 release.

RELEASE BACKGROUND

On December 11, 2018, a rollover of a DKS truck caused a release of crude oil to the western, southbound right-of-way (ROW) of State Highway 235 (also referred to as Curry Comb Road), resulting in the release of approximately 10 barrels (bbls) to 12 bbls of crude oil. A vacuum truck was immediately dispatched to the Site to recover freestanding fluids; approximately 6 bbls of crude oil were recovered. The net volume of fluids released was approximately 4 bbls to 6 bbls. The release occurred within the ROW with an estimated spill extent of approximately 8,000 square feet. DKS reported the release in December 2018 to the New Mexico Oil Conservation Division (NMOCD) via email and on a Notification and Corrective Action Form C-141 (Form C-141).

SITE CHARACTERIZATION

LTE characterized the Site according to Table 1, *Closure Criteria for Soils Impacted by a Release*, of Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the New Mexico Administrative Code (NMAC). Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on the nearest groundwater well data. The closest permitted groundwater

well with depth to groundwater data is United States Geological Survey (USGS) well 324154104115201, located approximately 1.08 miles southeast of the Site. The well was recently measured in December 2015 and has a reported depth to water of 159 feet with a total well depth of 160 feet bgs. All wells used for depth to groundwater determination are depicted on Figure 1. The referenced well records are included in Attachment 1.

The closest continuously flowing or significant watercourse to the Site is an intermittently flooded pond, located approximately 850 feet northwest of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is not underlain by unstable geology (low potential karst designation area). Site receptors are identified on Figure 1.

CLOSURE CRITERIA

Based on the results of the Site Characterization, the following NMOCD Table 1 Closure Criteria (Closure Criteria) apply:

- Benzene: 10 milligrams per kilogram (mg/kg)
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg
- Total petroleum hydrocarbons (TPH)-gasoline range organics (GRO) and TPH-diesel range organics (DRO): 1,000 mg/kg
- TPH: 2,500 mg/kg
- Chloride: 20,000 mg/kg

Additionally, the reclamation of the affected ROW must be comprised of non-waste containing earthen material exhibiting TPH concentrations below 100 mg/kg and chloride concentrations below 600 mg/kg, which was applied per NMAC 19.15.29.13.D (1) to the top 4 feet.

SITE ASSESSMENT ACTIVITIES AND ANALYTICAL RESULTS

From December 2018 to May 2020, DKS retained Souder, Miller & Associates (SMA) for site assessment and remediation. SMA performed delineation activities followed by a surface scrape and an application of Cool-Ox®, an oxidant, on the southern portion of the release extent following surficial scraping of crude-oil saturated soils. SMA prepared a *Remediation Plan for the DKS Transport/Artesia Crude Oil Release* (Remediation Plan), dated March 3, 2020, which describes remedial actions completed by SMA and what remedial actions SMA proposed to address residual impacts in soil. The Remediation Plan is included in Attachment 2.

In June 2020, DKS retained LTE to complete remedial actions for the Site. LTE reviewed the March 2020 Remediation Plan developed by SMA, and revised remedial actions to additional excavation in order to address residual hydrocarbon impacts in soil but utilized the confirmation sampling plan included in the Remediation Plan. Additional details regarding confirmation sampling are described in subsequent sections of this Closure Request.

The revised remedial actions began as soon as DKS received the executed permit from the New Mexico State Land Office (SLO) granting access to remediate soil impacted by the release. The executed permit was received on August 13, 2020 and on August 26, 2020, LTE personnel visited the Site to evaluate the release extent based on information provided on the Form C-141, information provided by DKS on remediation activities up to August 2020, and visual observations. LTE personnel collected three preliminary soil samples (SS01 through SS03) within the release extent at a depth of approximately 0.5 feet bgs to assess residual impacts in soil at the Site. Preliminary soil samples were field screened for volatile aromatic hydrocarbons and chloride utilizing a calibrated photoionization detector (PID) and Hach® chloride QuanTab® test strips, respectively. The release extent and preliminary soil sample locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted on Figure 2.

The preliminary soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were transported at or below 4 degrees Celsius (°C) under strict chain-of-custody (COC) procedures to Xenco Laboratories (Xenco) in Carlsbad, New Mexico, for analysis of BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0.

According to laboratory analytical results, TPH-GRO, TPH-DRO, TPH, and chloride in preliminary assessment soil sample SS01 and SS03 were reported at concentrations exceeding the reclamation requirement for soil between the ground surface and 4 feet bgs. In addition, TPH-GRO, TPH-DRO, and TPH concentrations in soil sample SS03, located closest to the point of release, exceeded the Closure Criteria. Based on visible staining in the release extent, elevated field screening results, and laboratory analytical results, additional excavation appeared to be corroborated with previous data and assessments.

Laboratory analytical results for the three preliminary soil samples are summarized in Table 1. The laboratory analytical report is included in Attachment 3.

EXCAVATION ACTIVITIES AND CONFIRMATION SOIL SAMPLE ANALYTICAL RESULTS

On August 31, 2020, LTE personnel were at the Site to oversee site assessment and excavation activities. Impacted soil was excavated from the release extent as indicated by field screening activities, laboratory analytical results, and visible staining. Excavation activities were performed

using a track-mounted backhoe, transport vehicle, and hydrovacuum truck. The excavation occurred in the ROW, adjacent to the pasture. To direct excavation activities, LTE screened soil for volatile aromatic hydrocarbons and chloride. Photographic documentation is included in Attachment 4.

On September 1, 2020, LTE collected 5-point composite soil samples using an EPA-approved Visual Sampling Plan (VSP) from the excavation, which was developed in the Remediation Plan. The VSP is a plan based on statistical sampling theory, which provides a randomized sampling plan representative of the soils that remain in place after the excavation. Based upon the release area, the VSP recommends nine randomly placed, composite samples for laboratory analysis (Attachment 5). The 5-point composite samples were collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. A total of nine composite floor soil samples (FS01 through FS09) were collected from the excavation at depths ranging from approximately 0.5 feet bgs to 1.5 feet bgs. The excavation soil samples were collected, handled, and analyzed following the same procedures as described above. The locations of the final extent of the excavation and September 1, 2020 confirmation soil samples are presented on Figure 3.

The excavation area totaled approximately 7,200 square feet. A total of approximately 240 cubic yards of impacted soil was removed during excavation activities overseen by LTE. The impacted soil was transported and properly disposed of at the R360 Facility in Hobbs, New Mexico. After completion of confirmation sampling, the excavation area was secured with fencing.

All laboratory analytical results for the nine confirmation floor samples were compliant with the Closure Criteria; however, concentrations TPH for excavation floor samples FS01, FS02, and FS09, collected on September 1, 2020, exceeded reclamation requirements applied in the top 4 feet of the pasture. As such, additional soil removal was warranted.

A new, randomized sampling plan was computed to determine the location of confirmation soil samples for collection following the scrape of the entire excavation, which is included in Attachment 5. On September 10 and 11, 2020, LTE personnel returned to the Site to oversee further excavation of the release extent. To direct excavation activities, LTE utilized equipment as described above and screened soil for volatile aromatic hydrocarbons and chloride. Following removal of additional impacted soil, LTE personnel collected nine additional confirmation samples following the new VSP sampling plan. The floor sample locations and release extent are depicted on Figure 4. An additional 100 cubic yards of impacted soil were removed and disposed of at the R360 disposal facility in Hobbs, New Mexico.

All laboratory analytical results for the nine confirmation floor samples were compliant with the Closure Criteria. Laboratory analytical results for the second set of randomized excavation confirmation floor samples, collected on September 11, 2020 indicated the chloride

concentration in floor sample FS03 exceeded the reclamation requirement applied to the top 4 feet of the pasture. Additional soil removal was warranted.

A third randomized sampling plan was computed to determine locations for the final confirmation soil samples following the scrape of the entire excavation, which is included in Attachment 4. On September 24, 2020, LTE personnel returned to the Site to oversee excavation of the release extent to address the remaining impacted soil. Excavation was completed using a hydrovacuum truck and directed by field screenings using the methods described above. After completing the excavation, LTE personnel collect nine randomized confirmation floor soil samples following the VSP sampling plan. Another 10 cubic yards of impacted soil were removed and disposed of at R360 disposal facility in Hobbs, New Mexico.

Laboratory analytical results for all final excavation confirmation soil samples (FS01 through FS09) collected on September 24, 2020, indicated benzene, BTEX, TPH-GRO, TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria and were compliant with the reclamation requirements. The final excavation extent and confirmation floor samples are depicted on Figure 5. Laboratory analytical results are summarized in Table 1 and laboratory analytical reports are included in Attachment 3.

CLOSURE REQUEST

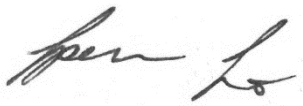
Site assessment and excavation activities were conducted at the Site to address the December 11, 2018 release of crude oil to the ROW of State Highway 235. Laboratory analytical results for excavation soil samples, collected from the final excavation extent, indicated benzene, BTEX, TPH-GRO, TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria. Additionally, soil samples collected in the pasture from the top 4 feet of the subsurface are compliant with the reclamation requirements. Based on a review of the excavation soil sample analytical results, no further remediation appears warranted. DKS will backfill the excavation with materials purchased locally and recontour the Site to match pre-existing site conditions. The excavation will be re-seeded with a regionally approved seed mixture in the fall.

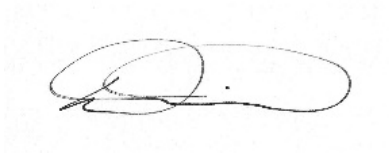
Initial response efforts which included removal of freestanding fluids via hydrovac and excavation of impacted soil have mitigated soil impacts at this Site. In addition to the surficial scrape of crude oil-saturated soils remaining onsite, completed by SMA, a total of 350 cubic yards of impacted soil have been removed from the Site. Depth to groundwater has been determined to be greater than 100 feet bgs and no other sensitive receptors are near the release extent. LTE and DKS believe these remedial actions are protective of human health, the environment, and groundwater. As such, DKS respectfully requests NFA for this release which occurred on December 11, 2018.

If you have any questions or comments, please do not hesitate to contact Mr. Daniel Moir at (432) 236-3849.

Sincerely,

LT ENVIRONMENTAL, INC.





Spencer Lo
Staff Geologist

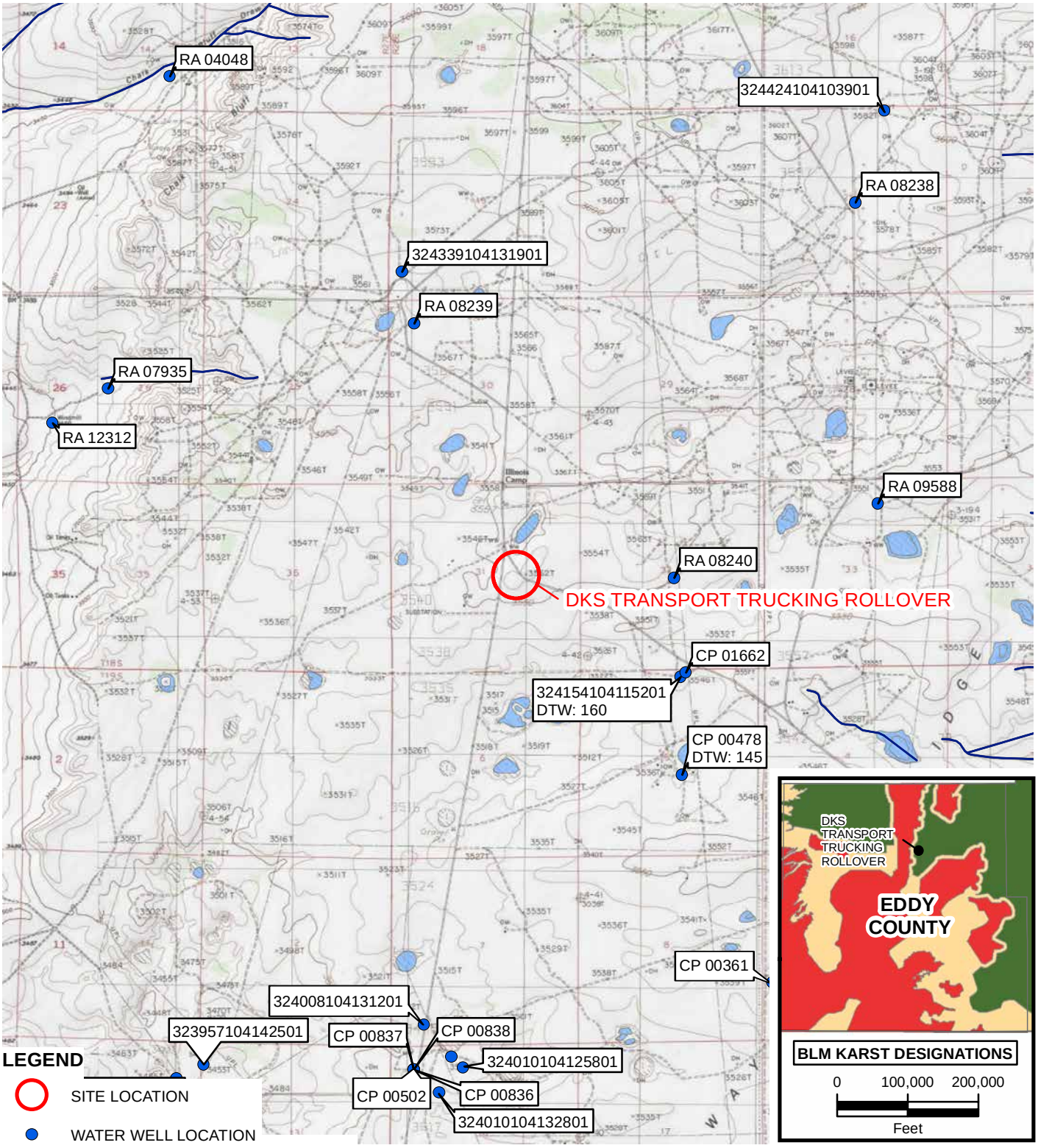
Daniel R. Moir, P.G.
Senior Geologist

cc: Josh Moser, DKS
Richard L. Harness, LMH Environmental, Inc.
Robert Hamlet, NMOCD
Victoria Venegas, NMOCD
Ryan Mann, New Mexico State Land Office

Attachments:

Figure 1	Site Location Map
Figure 2	Preliminary Soil Sample Locations
Figure 3	Excavation Soil Sample Locations September 1, 2020
Figure 4	Excavation Soil Sample Locations September 11, 2020
Figure 5	Excavation Soil Sample Locations September 24, 2020
Table 1	Soil Analytical Results
Attachment 1	Referenced Well Records
Attachment 2	SMA Remediation Work Plan
Attachment 3	Laboratory Analytical Reports
Attachment 4	Photographic Log
Attachment 5	VSP Sampling Plans

FIGURES



LEGEND

- SITE LOCATION
- WATER WELL LOCATION
- NATIONAL HYDROGRAPHY DATASET SURFACE WATER FEATURE
- NATIONAL WETLANDS INVENTORY SURFACE WATER FEATURE
- LOW KARST
- MEDIUM KARST
- HIGH KARST

DTW: DEPTH TO WATER IN FEET
BLM: BUREAU OF LAND MANAGEMENT

FIGURE 1
SITE LOCATION MAP
DKS TRANSPORT TRUCKING ROLLOVER
UNIT G SEC 31 T18S R28E
EDDY COUNTY, NEW MEXICO
DKS TRANSPORT, LLC

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P:\LMH\DKS\GIS\MXD\104320001_DKS TRANSPORT TRUCKING ROLLOVER\104320001_FIG01_SL_RECEPTOR_2020.mxd

IMAGE COURTESY OF ESRI

LEGEND

- RELEASE LOCATION
- PRELIMINARY SOIL SAMPLE WITH CONCENTRATIONS EXCEEDING APPLICABLE CLOSURE CRITERIA
- PRELIMINARY SOIL SAMPLE IN COMPLIANCE WITH APPLICABLE CLOSURE CRITERIA
- RELEASE EXTENT

SAMPLE ID@DEPTH BELOW GROUND SURFACE (FEET)

0 100 200
Feet

N

FIGURE 2
PRELIMINARY SOIL SAMPLE LOCATIONS
DKS TRANSPORT TRUCKING ROLLOVER
UNIT G SEC 31 T18S R28E
EDDY COUNTY, NEW MEXICO
DKS TRANSPORT, LLC

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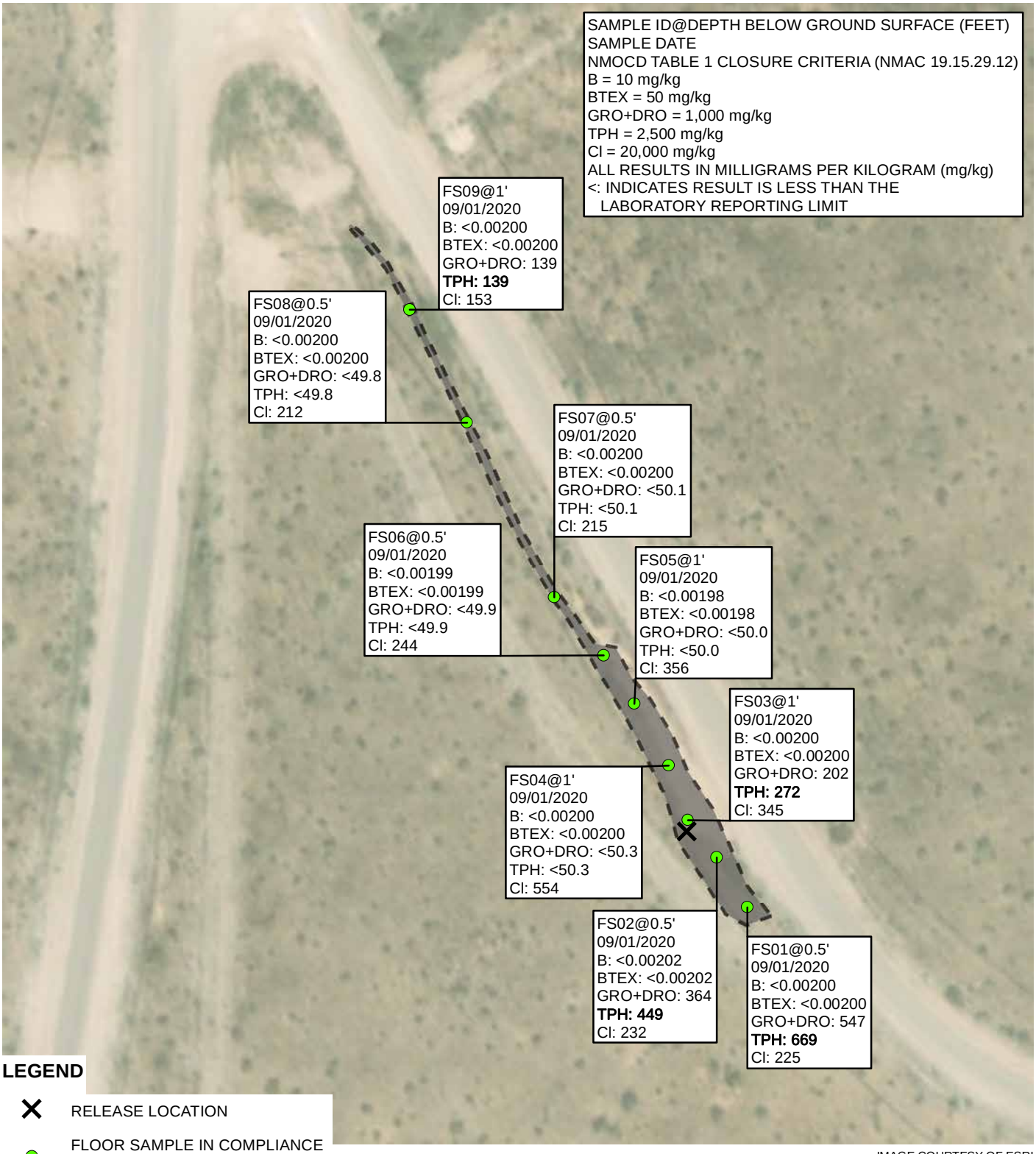

B: BENZENE
BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
GRO: GASOLINE RANGE ORGANICS
DRO: DIESEL RANGE ORGANICS
TPH: TOTAL PETROLEUM HYDROCARBONS
Cl: CHLORIDE
NMAC: NEW MEXICO ADMINISTRATIVE CODE
NMOCD: NEW MEXICO OIL CONSERVATION DIVISION
BOLD: SAMPLE EXCEEDS RECLAMATION REQUIREMENT

FIGURE 3
EXCAVATION SOIL SAMPLE LOCATIONS
DKS TRANSPORT TRUCKING ROLLOVER
UNIT G SEC 31 T18S R28E
EDDY COUNTY, NEW MEXICO
DKS TRANSPORT, LLC

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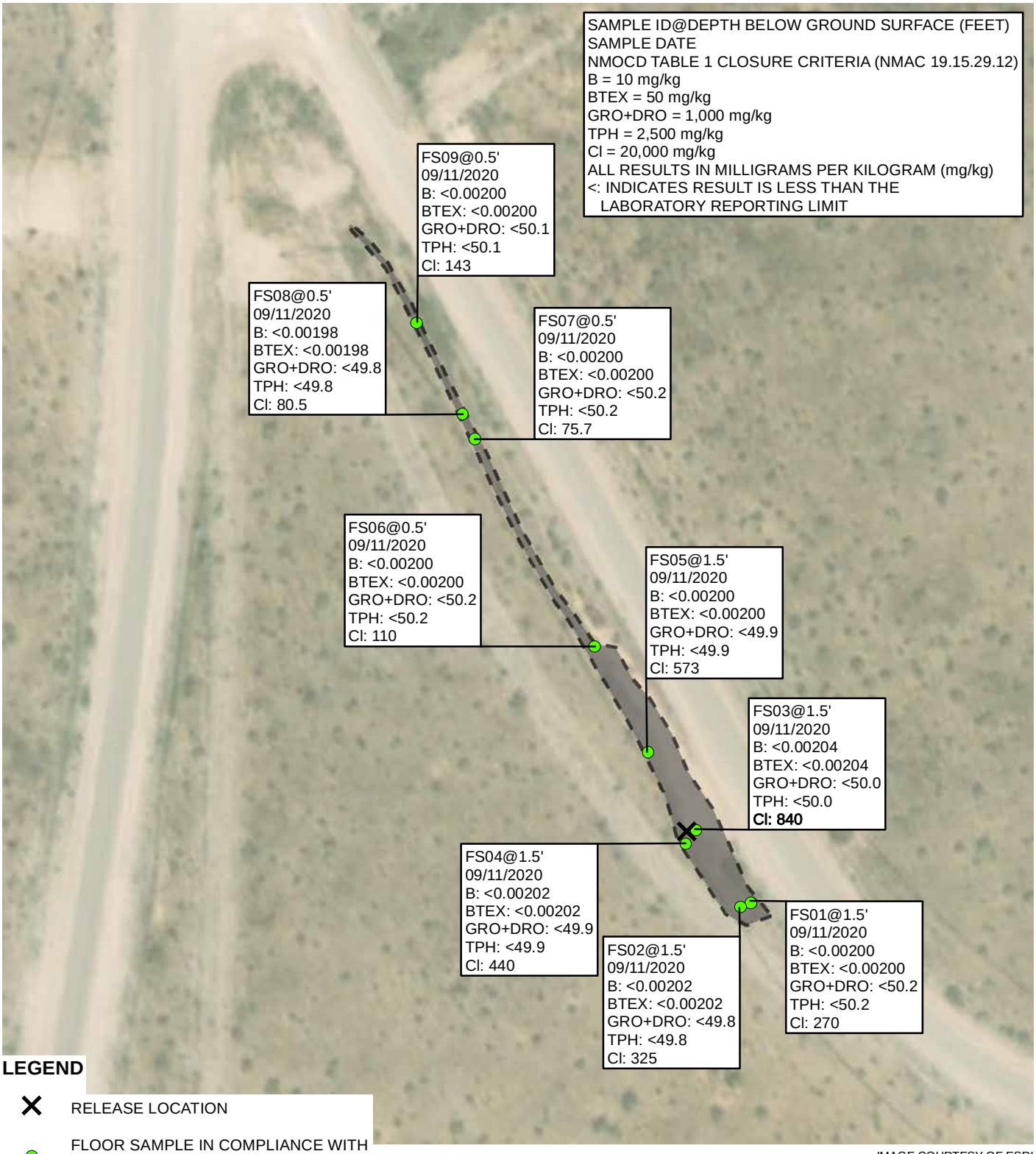

B: BENZENE
BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
GRO: GASOLINE RANGE ORGANICS
DRO: DIESEL RANGE ORGANICS
TPH: TOTAL PETROLEUM HYDROCARBONS
Cl: CHLORIDE
NMAC: NEW MEXICO ADMINISTRATIVE CODE
NMOCD: NEW MEXICO OIL CONSERVATION DIVISION
BOLD: SAMPLE EXCEEDS RECLAMATION REQUIREMENT

FIGURE 4
EXCAVATION SOIL SAMPLE LOCATIONS
DKS TRANSPORT TRUCKING ROLLOVER
UNIT G SEC 31 T18S R28E
EDDY COUNTY, NEW MEXICO
DKS TRANSPORT, LLC

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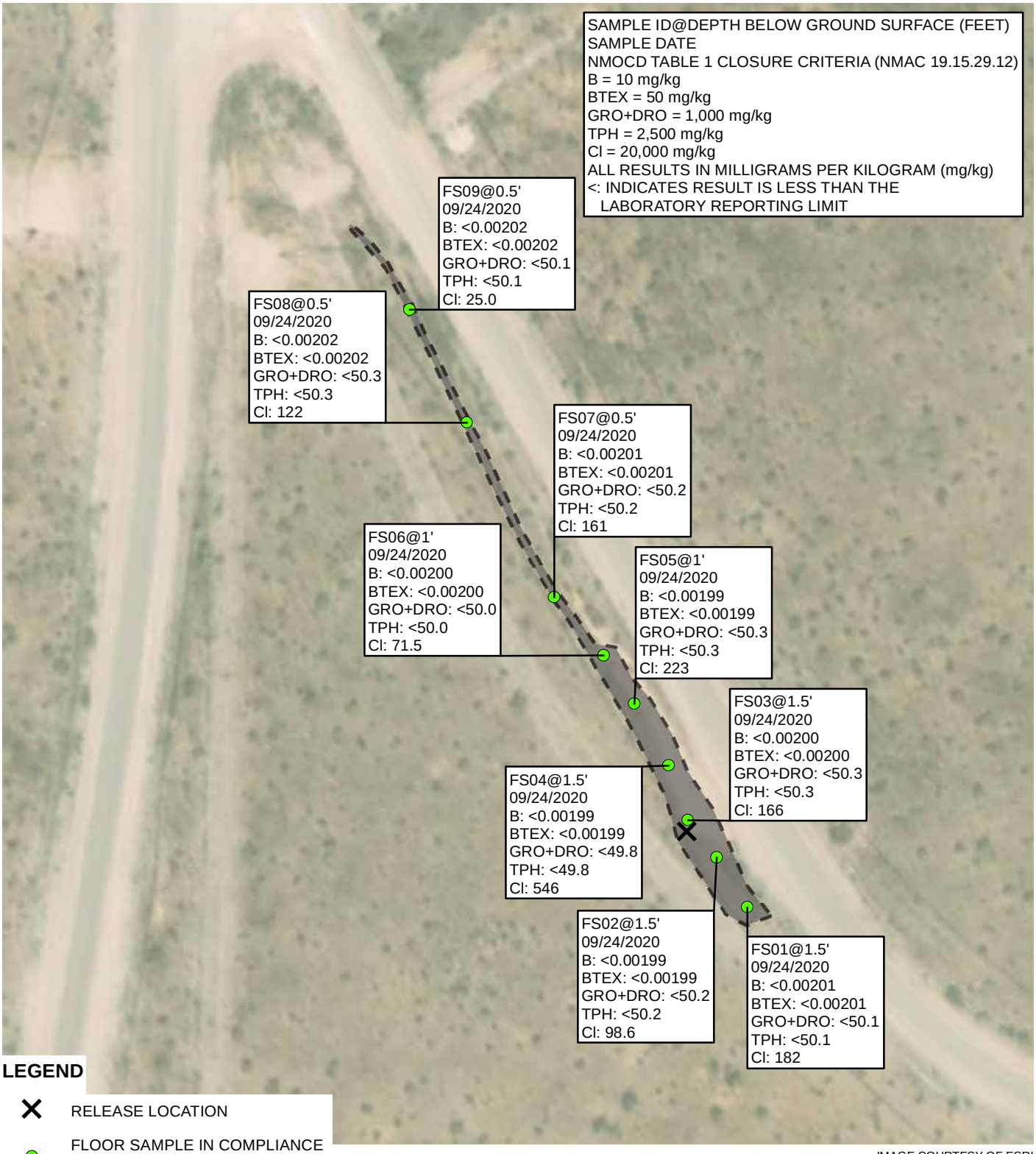

B: BENZENE
BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
GRO: GASOLINE RANGE ORGANICS
DRO: DIESEL RANGE ORGANICS
TPH: TOTAL PETROLEUM HYDROCARBONS
Cl: CHLORIDE
NMAC: NEW MEXICO ADMINISTRATIVE CODE
NMOCD: NEW MEXICO OIL CONSERVATION DIVISION

FIGURE 5
EXCAVATION SOIL SAMPLE LOCATIONS
DKS TRANSPORT TRUCKING ROLLOVER
UNIT G SEC 31 T18S R28E
EDDY COUNTY, NEW MEXICO
DKS TRANSPORT, LLC

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TABLES

TABLE 1
SOIL ANALYTICAL RESULTS

DKS TRUCK ROLLOVER SPILL
SPILL DATE DECEMBER 11, 2018
EDDY COUNTY, NEW MEXICO
DKS TRUCKING, LLC

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria			**10**	**NE**	**NE**	**NE**	**50**	**NE**	**NE**	**NE**	**1,000**	**2,500**	**20,000**
SS01	0.5	08/26/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.8	112	<49.8	112	112*	2420*
SS02	0.5	08/26/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	44.2
SS03	0.5	08/26/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<49.9	4,430	713	**4,430**	**5,140**	511
VSP FIELD SAMPLING DATE 09/01/2020													
FS01	0.5	09/01/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.1	547	122	547	669*	225
FS02	0.5	09/01/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.1	364	85.2	364	449*	232
FS03	1	09/01/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.0	202	70.3	202	272*	345
FS04	1	09/01/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.3	<50.3	<50.3	<50.3	<50.3	554
FS05	1	09/01/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	356
FS06	0.5	09/01/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	244
FS07	0.5	09/01/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	215
FS08	0.5	09/01/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	212
FS09	1	09/01/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	139	<49.9	139	139*	153
VSP FIELD SAMPLING DATE 09/11/2020													
FS01	1.5	09/11/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	270
FS02	1.5	09/11/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.8	<49.8	<49.8	<49.8	<49.8	325
FS03	1.5	09/11/2020	<0.00204	<0.00204	<0.00204	<0.00204	<0.00204	<50.0	<50.0	<50.0	<50.0	<50.0	840*
FS04	1.5	09/11/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	440
FS05	1.5	09/11/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	573
FS06	0.5	09/11/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	110
FS07	0.5	09/11/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	75.7
FS08	0.5	09/11/2020	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<49.8	<49.8	<49.8	<49.8	<49.8	80.5
FS09	0.5	09/11/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	143

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TABLE 1
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SPILL DATE DECEMBER 11, 2018
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Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
VSP FIELD SAMPLING DATE 09/24/2020													
FS01	1.5	09/24/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.1	<50.1	<50.1	<50.1	<50.1	182
FS02	1.5	09/24/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	98.6
FS03	1.5	09/24/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.3	<50.3	<50.3	<50.3	<50.3	166
FS04	1.5	09/24/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	546
FS05	1	09/24/2020	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<50.3	<50.3	<50.3	<50.3	<50.3	223
FS06	1	09/24/2020	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	71.5
FS07	0.5	09/24/2020	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<50.2	<50.2	<50.2	<50.2	<50.2	161
FS08	0.5	09/24/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.3	<50.3	<50.3	<50.3	<50.3	122
FS09	1.5	09/24/2020	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<50.1	<50.1	<50.1	<50.1	<50.1	25.0

Notes:

bgs - below ground surface

BTEX - benzene, toluene, ethylbenzene, and total xylenes

DRO - diesel range organics

GRO - gasoline range organics

mg/kg - milligrams per kilogram

Grey text - indicates soil was excavated

ORO - motor oil range organics

NMAC - New Mexico Administrative Code

NMOCD - New Mexico Oil Conservation Division

NE - not established

TPH - total petroleum hydrocarbons

Bold - indicates result exceeds the applicable regulatory standard

< - indicates result is below laboratory reporting limits

Table 1 - closure criteria for soils impacted by a release per NMAC 19.15.29 August 2018

* - indicates result exceeds the applicable reclamation requirement

VSP - Visual Sampling Plan

ATTACHMENT 1: REFERENCED WELL RECORDS

USGS 324154104115201 19S.28E.05.21114

Available data for this site

Well Site

DESCRIPTION:

Latitude 32°41'45.8", Longitude 104°11'48.7" NAD83
Eddy County, New Mexico , Hydrologic Unit 13060011
Well depth: 160 feet
Land surface altitude: 3,543 feet above NAVD88.
Well completed in "Rustler Formation" (312RSLR) local aquifer

AVAILABLE DATA:

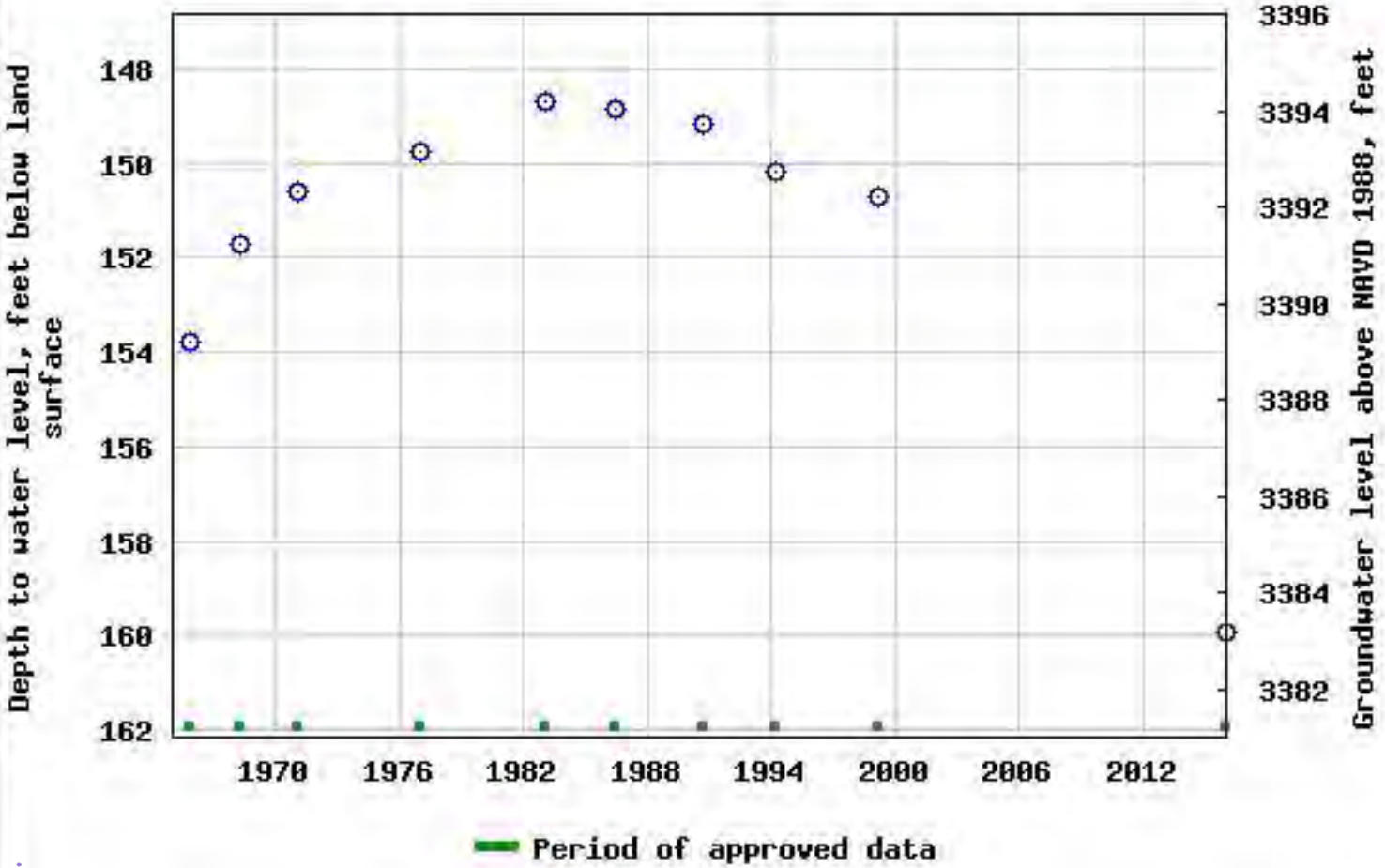
Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1965-11-03	2015-12-16	10
Revisions	Unavailable (site:0) (timeseries:0)		

OPERATION:

Record for this site is maintained by the USGS New Mexico Water Science Center
Email questions about this site to New Mexico Water Science Center Water-Data Inquiries

USGS

USGS 324154104115201 19S.28E.05.21114



New Mexico Office of the State Engineer
Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Twn	Rng	X	Y
	CP 00478 POD1	1	1	4	05	19S	28E	575300	3617036*

x

Driller License: 406 **Driller Company:** TIDWELL, CLYDE J.

Driller Name: CLYDE TIDWELL

Drill Start Date: 12/12/1969 **Drill Finish Date:** 12/23/1969 **Plug Date:**

Log File Date: 01/02/1970 **PCW Rcv Date:** 11/01/1971 **Source:** Shallow

Pump Type: SUBMER **Pipe Discharge Size:** **Estimated Yield:** 7 GPM

Casing Size: 7.00 **Depth Well:** 312 feet **Depth Water:** 145 feet

x

Water Bearing Stratifications:	Top	Bottom	Description
	150	160	Sandstone/Gravel/Conglomerate
	200	262	Sandstone/Gravel/Conglomerate

x

Casing Perforations:	Top	Bottom
	140	262

x

***UTM location was derived from PLSS - see Help**

ATTACHMENT 2: SMA Remediation Work Plan

Souder, Miller & Associates♦201 S. Halagueno St.♦Carlsbad, NM 88220

March 3, 2020

#5E29103-T2

NMOCD District 2
811 S. First St.
Artesia, New Mexico 88210

SUBJECT: Remediation Plan for the DKS Transport/Artesia Crude Oil Release (OGRID P30056), Eddy County, New Mexico

Mr. Bratcher:

On behalf of DKS Trucking, LLC, Souder, Miller & Associates (SMA) has prepared this Remediation Plan that describes the proposed sampling and remediation for a release of crude oil resulting from a truck rollover that occurred on December 11, 2018 in Eddy County, New Mexico. The location of the truck rollover is in Section 31, Township 18S, Range 28E, Eddy County, New Mexico, on New Mexico State Land. Figure 1 illustrates the vicinity and site location on an USGS 7.5-minute quadrangle map.

Table 1 summarizes information regarding the release.

Table 1. Release Information and Closure Criteria			
Name	DKS Transport, LLC Truck Rollover	**Company**	DKS Transport, LLC
Location	32.70417, -104.21184		
Estimated Date of Release	12/11/2018	**Date Reported to NMOCD**	C141 initially submitted 12/19/2018, C141 resubmitted 6/13/19 after obtaining OGRID
Landowner	New Mexico State Land Office (SLO)		
Source of Release	Truck rollover		
Released Volume	10-12 bbls	**Released Material**	Crude Oil
Recovered Volume	6 bbls	**Net Release**	4-6 bbls
NMOCD Closure Criteria	>100 feet to groundwater		

1.0 Background

On December 11, 2018, the rollover of a DKS Transport, LLC (DKS) truck caused a release of crude oil. According to DKS, the truck rollover only involved un-refined crude oil; no produced water or other brine-related waste was present in the truck. DKS conducted initial response activities including source

elimination, site security, and containment. Approximately 6 barrels of fluid were recovered during the initial response. An absorbent powder was also placed on the majority of the visibly stained surface area to prevent further migration of crude oil.

An initial C-141 Form was submitted on December 19, 2018 to the New Mexico Oil Conservation Division (NMOCD); however, the C-141 Form was rejected by NMOCD due to the lack of an OGRID number (Oil and Gas Reporting ID). DKS applied to obtain an OGRID, which was fulfilled on March 20, 2019. The C-141 Form was then resubmitted to NMOCD District 2 on June 13, 2019.

Figures 1 and 2 illustrate the project vicinity and site location, Figures 3 and 4 illustrate the release location. The C-141 form is included in Appendix A.

2.0 Site Information and Geology

The DKS Transport, LLC truck rollover site is located approximately 33.5 miles northwest of Carlsbad, New Mexico. The site is on land owned by the New Mexico State Land Office (SLO) at an elevation of approximately 3,568 feet above mean sea level (amsl). The release occurred on the west side of Curry Comb Road/County Road 235, a paved, two-lane county road.

According to correspondence with the SLO on December 14, 2018, the release occurred 60 feet inside the southern part of the Illinois Camp area, a former historic oil town. The site has remnants of features related to the camp, including structural foundations and subsurface cultural deposits. SLO has determined the site to be eligible for inclusion in the National Register of Historic Places. SLO requested the completion of a Right of Entry (ROE) form and required that a permitted archeological monitor be present during remediation activities. A copy of the correspondence with SLO regarding the archeological site is included in Appendix B.

The site of the release is comprised of mostly Kimbrough-Stegall loams (Web Soil Survey, 2020). The Kimbrough unit is a mixed alluvium and/or eolian sand base, with loam in the upper 9 inches and indurated (hardened) petrocalcic material, commonly known as caliche, at 9 inches and deeper. Similarly, the Stegall unit is mixed alluvium and/or eolian sand with loams/clay loams in the upper 20 inches, and an indurated, petrocalcic layer beginning around 20 inches bgs. Petrocalcic layers are typically characterized as a continuous layer of cemented carbonates and tend to be quite impermeable. A copy of the Web Soil Survey report is included in Appendix C.

Historical Google Earth® images indicate the area of release has shown previous disturbance. It is unknown what occurred, but images from 2014 and 2016 indicate scarring and impacts to vegetation on the west side of Curry Comb Road. The following Google Earth® images (Images 1 – 3) show the area of interest from 2013, 2014, and 2016, all before the December 2018 DKS truck rollover incident occurred. These indicate that the DKS truck rollover incident did not cause the current vegetative scarring that is currently observed at the site.

Image 1. Google Earth image from 4/16/2013. Area of interest appears relatively undisturbed.

Image 2. Google Earth image from 5/1/2014. Note initial scarring to area of interest.

Image 3. Google Earth image from 3/12/2016. Note the greater area of scarring and lack of vegetation.

2.1 Closure Criteria

Based upon New Mexico Office of State Engineer (NMOSE) data, depth to groundwater in the area is estimated to be 167 feet below grade surface (bgs). There are no known water sources within ½-mile of the location (NMOSE Online Water Well Database, 2019). The nearest significant watercourse is the Pecos River, located approximately 5.1 miles to the west. Figure 2 illustrates the site with 100-, 200-, and 300-foot radii to indicate that it does not lie within a sensitive area as described in 19.15.29.12.C(4) NMAC. Pertinent well data is attached in Appendix D.

The site is not considered an "exploration, development, production or storage site" and therefore the top four feet must be remediated to the most stringent standards. Additionally, the release area did not occur on land considered "in-use", as outlined by 19.15.29.13.D NMAC. Therefore, the release area shall be reclaimed within the upper four feet to meet the standards of 19.15.29.13.D(1).

Based on the information presented herein, the applicable NMOCD Closure Criteria for this site is for groundwater depth of greater than 100 feet bgs, plus the requirements of reclamation for the upper four feet of impacted soil. Table 2 demonstrates the Closure Criteria applicable to this location.

Table 2. NMOCD Closure Criteria				
Soil Depth (ft)	BTEX (mg/Kg)	Benzene (mg/Kg)	Total TPH (mg/Kg)	Chlorides (mg/Kg)
0-4 feet	50	10	100	600
>4 feet	50	10	1,000	20,000

3.0 Release Characterization Activities and Findings

3.1 Initial Response and Release Delineation (December 12, 2018)

On December 12, 2018, SMA personnel arrived on site in response to the release associated with the DKS Transport, LLC truck rollover. SMA performed site delineation activities by collecting soil samples around the release site and throughout the visibly stained area. Soil samples were field screened for chloride using an electrical conductivity (EC) meter and for hydrocarbon impacts using a Dexsil® PetroFLAG TPH Analyzer.

A total of seventeen sample locations (S1-S17) were investigated using a hand-auger to depths up to 0.5 feet bgs. A restrictive rock layer, the caliche noted in the soil description, prevented deeper delineation by hand. Field screening results indicated high concentrations of total petroleum hydrocarbons (TPH) and high concentrations of chlorides predominantly in the southern portion of the release area, which is where the rollover occurred.

A total of four samples were collected for laboratory analysis for total chloride using EPA Method 300.0; benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA Method 8021B, and; TPH - motor, -diesel and -gasoline range organics (MRO, DRO, and GRO) by EPA Method 8015D. Samples were placed into laboratory supplied glassware, labeled, and maintained on ice until delivery under chain of custody to Hall Environmental Analysis Laboratory (Hall) in Albuquerque, New Mexico.

Laboratory results showed high amounts of TPH-MRO, DRO, and GRO in samples S1, S4, and S5 along the spill path. Chloride concentrations ranged from less than laboratory detection levels (<30 mg/Kg in sample S12) to 13,000 mg/Kg (sample S4).

Initial delineation activities indicated that an area of approximately 8,000 square feet (ft^2) was impacted. Contaminant concentrations above the NMCOD Closure Criteria remained at the site, predominantly in the southern portion of the release path where the rollover occurred. Table 6 (attached) summarizes the field and laboratory results, Figure 3 displays sample locations, and the laboratory report is included in Appendix E.

3.2 Release Containment and Surface Scraping (December 18, 2018)

In order to contain the release and limit further impacts from any crude oil-saturated soils that remained on site, the surface of the stained area was scraped down 2 inches and removed from site on December

18, 2018. The scraped soils were noted to have a strong hydrocarbon odor and dark staining. The contaminated soils were disposed at Lea Land, LLC, an NMOCD regulated disposal facility.

3.3 Further Delineation (May 10, 2019)

SMA returned to the site with a representative from Advanced Archeological Solutions on May 10, 2019 to collect additional samples from the release area. The representative is in compliance with the SLO requirement for a certified archeological monitor. Samples were collected using a rock bar to break up the caliche layer as much as possible, though efforts to penetrate very deep into the layer were difficult. A total of four sample locations were established (L1-L4) to depths of 6-10 inches bgs, where rock refusal prevented any further investigation. The archeological representative on site did not observe any archeological findings during sample collection.

Collected soil samples were sent for laboratory analysis and analyzed for total chlorides, BTEX, and TPH-MRO, DRO, and GRO. Laboratory analysis shows that contamination extends to the indurated rock layer at 6-10 inches bgs.

Table 6 (attached) itemizes the sample screening results. Locations for all samples are depicted on Figure 3.

3.4 Application of Oxidant (July 2, 2019)

On July 2, 2019, SMA returned to the site to apply an in-situ oxidation product, Cool-Ox® to the southern portion of the site. Composite samples (C1-C5) were collected along the release area prior to application of the Cool-Ox® to establish a baseline for the treatment. At this time, two background samples, BG1 and BG2, were also collected from two different soil types from the opposite side of the adjacent road (Curry Comb Rd/235) in order to determine if high chloride concentrations in the soil are naturally occurring and pre-existing. Sample locations and the area of Cool-Ox® application is shown in Figure 4.

Results of the baseline composite samples indicated lower concentrations of TPH-contaminated soils compared to previous sampling events, though concentrations remained above the NMOCD Closure Criteria of 100 mg/Kg for the upper four feet of soil. Background sample BG1, collected from the field northeast of the release area, resulted in a chloride concentration of 400 mg/Kg. Background sample BG2, taken just east of Curry Comb Road, resulted in a chloride concentration of 8,900 mg/Kg. The variability in background chloride concentrations indicate nearby soils have potentially been impacted due to other oilfield-related activities along Curry Comb Road.

4.0 Recommendations for Site Remediation and Reclamation

An indurated caliche layer that is known to exist in the area of the release was observed during delineation activities and prevented penetration of the hand auger and rock bar to depths as shallow as 6 inches. The tightly compacted caliche layer, which is known to impede water movement into deeper

soil layers (Idowu & Flynn, 2015), also creates a layer of relatively lower permeability for which crude oil has likely not penetrated. Due to this less permeable layer, the release of the crude oil from the truck rollover was likely contained to the loose topsoil above, i.e. the upper 6-10 inches.

In deliberation of contaminant closure levels, the contents of the truck release were also considered. As communicated by DKS, the truck rollover only involved crude oil, meaning neither produced water or other brine-related waste was present in the truck. The chemical composition of crude oil is limited to carbon, hydrogen, sulfur, nitrogen, oxygen, and trace amounts of metals (Speight, 1999). Organic chlorides do not naturally occur in crude oil. Therefore, the release from the truck rollover did not contaminate the site with chlorides. The chlorides detected in samples collected from the release site are likely a combination of naturally occurring chlorides, impacts from the historic oilfield camp, Illinois Camp, and contributions from roadside activities related to heavy oilfield and industrial traffic (such as shown in Images 2 and 3). Therefore, SMA does not recommend remediation of chlorides as they were not part of the DKS truck rollover release.

With soil composition and the components of the release contents (crude oil) in mind, SMA proposes remediation of soils impacted with TPH and BTEX only, which consists of approximately 6-10 inches of loose topsoil. Remediation for BTEX and TPH will be performed according to the NMOCD Closure Criteria for the upper four feet of soil for a site not "in use", as shown in Table 3. SMA does not believe that remaining contamination at the site extends deeper than 4 feet bgs due to indurated caliche layer that occurs at 6-10 inches bgs. Therefore, the NMOCD closure criteria for soils greater than 4 feet bgs do not apply.

Table 3. NMOCD Closure Criteria for DKS Release Site for Soils <4 ft bgs

BTEX (mg/Kg)	Benzene (mg/Kg)	Total TPH (mg/Kg)
50	10	100

SMA proposes the following iterative remediation and reclamation steps to achieve closure for the DKS release:

- **Step 1**: Collect post-Cool-Ox® application samples to determine if the application from July 2019 was enough to remediate TPH and BTEX-impacted soils. Perform field-screening on these samples using the PetroFLAG TPH Analyzer. Samples will be collected at both surface and at auger refusal (6-10 inches bgs) to verify that Cool-Ox® penetrated to the deeper soils. If field results indicate low concentrations for TPH, then samples will be collecting and submitted for laboratory analysis. SMA proposes using the EPA-recommended Visual Sample Plan (VSP) software tool to determine the number and locations of site closure composite samples for laboratory analysis. The VSP tool is a defensible plan based on statistical sampling theory, which provides a randomized sampling plan representative of the soils that remain after treatment and/or excavation. Based on data input from the release area, VSP recommends approximately nine composite samples for laboratory analysis. The VSP Sample Design Report with the

proposed sample locations is included in Appendix F. Laboratory results will indicate if further remediation of the southern portion is required, or if remediation should focus only on the remaining non-treated portion to the north.

- **Step 2**: If field screening from Step 1 indicates high concentrations of TPH remain, then SMA proposes excavation and removal of the upper 6-10 inches of soil (or until the petrocalcic layer is reached). Approximately 240 cubic yards (8,000 ft^2 x 0.8 ft depth) of soil may be removed. The indurated caliche surface will be scraped by machinery and hand tools as well as possible, then resampled and field tested for TPH. If field results indicate low TPH concentrations, then site closure composite samples will be collected per the VSP recommended sampling plan and submitted for laboratory analysis.

- **Step 3**: Should field results indicate that high concentrations of TPH remain, then a second treatment of Cool-Ox® is recommended for application directly on the exposed caliche. Approximately 3 months after Cool-Ox® application, the site will be resampled for closure.

Each step outlined above will be completed with an approved ROE form and a permitted archeological monitor on site. Sampling and/or excavation activities will be halted or altered per instructions from the onsite archeological monitor.

- **Step 4**: Upon laboratory verification that all closure samples are reported below the NMOCD Closure Criteria, the excavated area will be backfilled with clean soil, contoured to natural conditions, and seeded with a native seed mix for revegetation.

- **Step 5**: A final Closure Report will be submitted to NMOCD demonstrating sampling, excavation activities (if applicable), laboratory results, photos, field notes, and any restrictions put in place by the on-site archeological monitor. SMA anticipates completion of remediation and closure report submittal as outlined by Table 4 below:

Table 4. Anticipated Timeline for Completion of Remediation and Reclamation Activities

Site Closure	Approximate Time to Submittal of Closure Report
1st Application of Cool-Ox® shown successful	45 days
Excavation Required	60 days
2nd Application of Cool-Ox® necessary	150 days (3 months required for Cool-Ox®)

5.0 Scope and Limitations

The scope of our services included: assessment sampling; verifying release stabilization, regulatory liaison, and preparing this remediation plan. All work has been performed in accordance with generally accepted professional environmental consulting practices for oil and gas releases in the Permian Basin in New Mexico.

If there are any questions regarding this report, please contact either Shawna Chubbuck at 505-325-7535.

Submitted by:
SOUDER, MILLER & ASSOCIATES

Reviewed by:

Stephanie Hinds
Staff EIT II

Shawna Chubbuck
Senior Scientist

ATTACHMENTS:

Figures:

Figure 1: Vicinity and Well Head Protection Map
Figure 2: Surface Water Radius Map
Figure 3: Site & Sample Location Map
Figure 4: Site, Sample Location, & Cool-Ox® Application Map

Tables:

Table 5: NMOCD Closure Criteria Justification
Table 6: Summary of Sample Results

Appendices:

Appendix A: Form C141
Appendix B: Correspondence with NMSLO
Appendix C: Web Soil Survey Report, February 18, 2020
Appendix D: NMOSE Wells Report
Appendix E: Hall Laboratory Reports
Appendix F: EPA Visual Sampling Plan

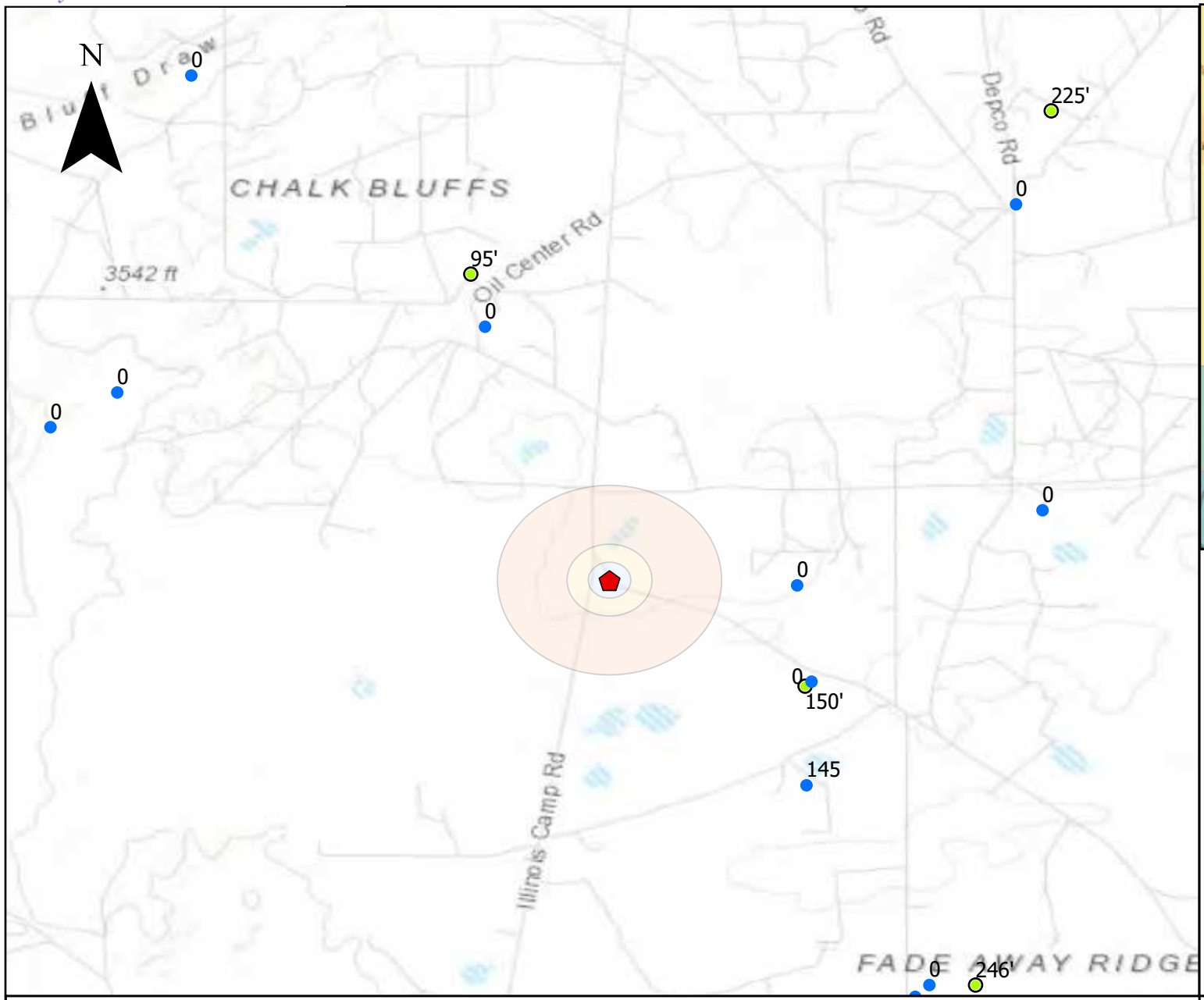
References

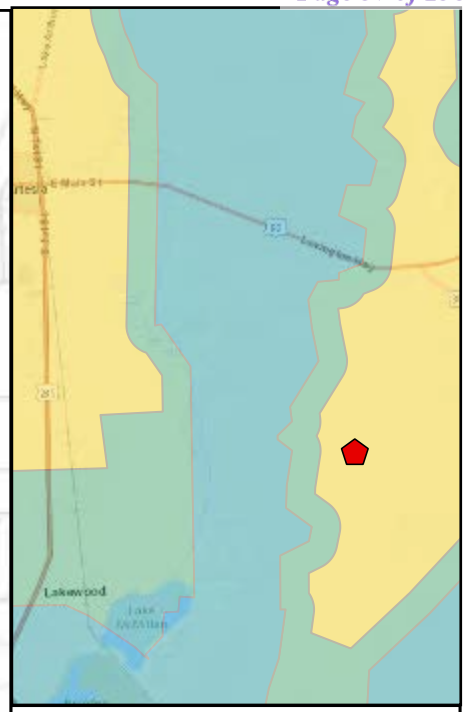
Idowu, J., & Flynn, R. (2015, September). Growing Plants in Caliche Soils. Las Cruces, New Mexico, US.

New Mexico Office of State Engineer. (2019, May 20). *NMOSE Online Water Well Database*. Retrieved from http://gis.ose.state.nm.us/gisapps/ose_pod_locations/

Speight, J. G. (1999). *The Chemistry and Technology of Petroleum, 3rd Edition.* New York, New York, US: Marcel Dekker, Inc.

FIGURES





Legend

- Point of Release
- OSE Waterwells
- USGS Wells
- .5 Mile
- 1000 Feet
- 500 Feet

Karst Potential
Low
High
Medium

0 0.28 0.56 1.12 Miles

Regional Vicinity & Wellhead Protection Map
DKS Truck Rollover Site - DKS Transport LLC
Sec 31 T18S R28E, New Mexico

Figure 1

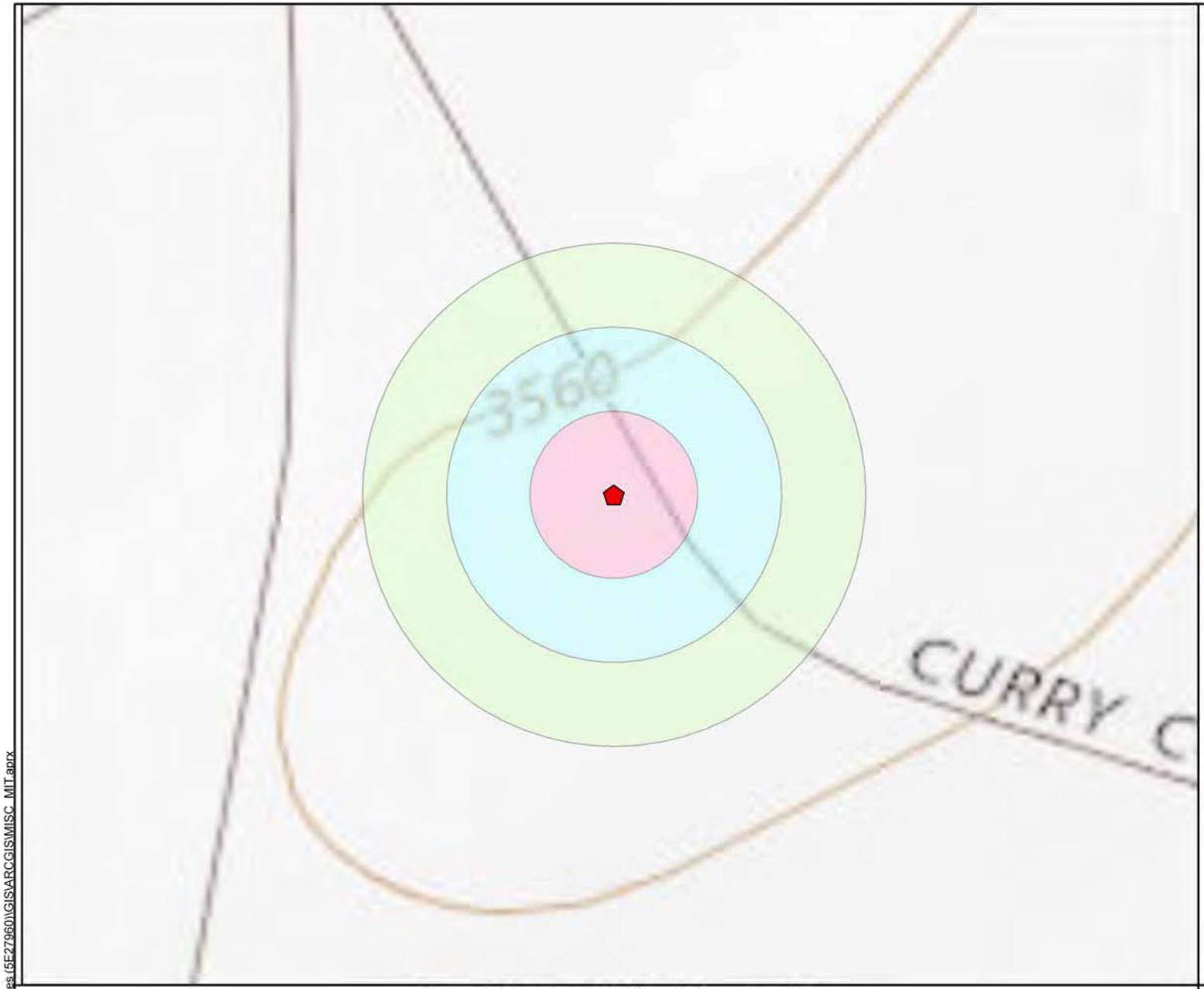
Revisions
By: Date: Descr:
By: Date: Descr:

Drawn: Heather Patterson
Date: 7/15/2019
Checked:
Approved:

201 South Halaguena Street
Carlsbad, New Mexico 88221
(575) 689-7040
Serving the Southwest & Rocky Mountains

Date Saved: 7/15/2019

P:\5-XTO 2019 MSA On Call Services (5E27960)\GIS\ARCGIS\MISC_MIT.aprx



Point of Release
Springs & Seeps
Streams & Canals
Rivers
NM Wetlands
Lakes Playas
FEMA Flood Zones 2011

Buffer Distance
100 Feet
200 Feet
300 Feet

N

0 0.01 0.03 0.05 Miles

Regional Vicinity & Wellhead Protection Map
DKS Truck Rollover Spill-DKS Transport LLC
Sec. 31 T18S R28E Eddy County, New Mexico

Figure 2

P:\5-XTO 2019 MSA On Call Services (5E27960)\GIS\ARCGIS\MISC_MIT.aprx
Date Saved: 6/12/2019

Revisions
By: Date: Descr:
By: Date: Descr:

Drawn LRB
Date 6/14/2019
Checked
Approved

SMA
201 South Halagueno Street
Carlsbad, New Mexico 88221
(575) 689-7040
Serving the Southwest & Rocky Mountains

Sample Locations 12.12.2018

Sample Locations 5.9.2019

Release Area

N

0 32.5 65 130 Feet

Site & Sample Location Map
DKS Release - Great West Casualty
Eddy County, New Mexico

Figure 3

Revisions

By: _____ Date: _____ Descr: _____

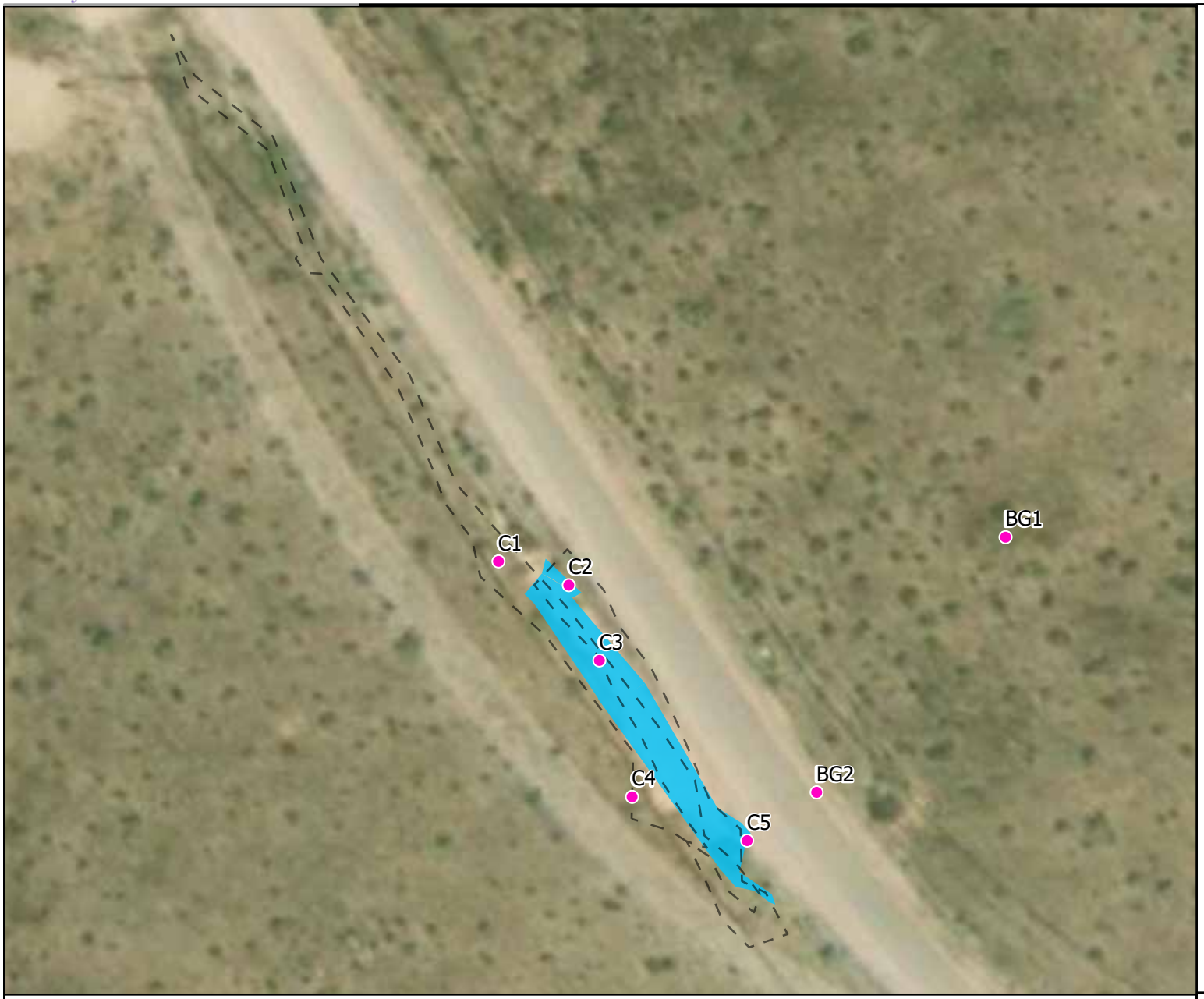
By: _____ Date: _____ Descr: _____

Drawn Lynn A. Acosta
Date 2/29/2020
Checked
Approved

201 South Halaguena Street
Carlsbad, New Mexico 88221
(575) 689.7040
Serving the Southwest & Rocky Mountains

Date Saved: 1/13/2020

\\192.168.22.10\Projects\5-XTO 2019 MSA On Call Services (5E27960)\GIS\ARCGIS\MISC_MIT.aprx



Sample Locations 7.2.2019
Release Area
Cool-Ox Application

N

0 32.5 65 130 Feet

Site, Sample Location, & Cool-Ox Application Map
DKS Release - Great West Casualty
Eddy County, New Mexico

Figure 4

Revisions
By: Date: Descr:
By: Date: Descr:

Date Saved: 2/29/2020

Drawn Lynn A. Acosta
Date 3/1/2020
Checked
Approved

SMA
201 South Halaguena Street
Carlsbad, New Mexico 88221
(575) 689-7040
Serving the Southwest & Rocky Mountains

\\192.168.22.10\Projects\5-XTO 2019 MSA On Call Services (5E27960)\GIS\ARCGIS\MISC_MIT.aprx

TABLES

Table 5:
NMOCD Closure Criteria

Site Information (19.15.29.11.A(2, 3, and 4) NMAC)		Source/Notes
Depth to Groundwater (feet bgs)	~167'	
Hortizontal Distance From All Water Sources Within 1/2 Mile (ft)		
Hortizontal Distance to Nearest Significant Watercourse (ft)		

Closure Criteria (19.15.29.12.B(4) and Table 1 NMAC)						
Depth to Groundwater		**Closure Criteria (units in mg/kg)**				
		Chloride *numerical limit or background, whichever is greater	**TPH**	**GRO + DRO**	**BTEX**	**Benzene**
< 50' BGS		600	100		50	10
51' to 100'		10000	2500	1000	50	10
>100'	X	20000	2500	1000	50	10
Surface Water	**yes or no**	**if yes, then**				
<300' from continuously flowing watercourse or other significant watercourse?	NO	600	100		50	10
<200' from lakebed, sinkhole or playa lake?	NO					
Water Well or Water Source						
<500 feet from spring or a private, domestic fresh water well used by less than 5 households for domestic or stock watering purposes?	NO					
<1000' from fresh water well or spring?	NO					
Human and Other Areas						
<300' from an occupied permanent residence, school, hospital, institution or church?	NO					
within incorporated municipal boundaries or within a defined municipal fresh water well field?	NO					
<100' from wetland?	NO					
within area overlying a subsurface mine	NO					
within an unstable area?	NO					
within a 100-year floodplain?	NO					

SMA #

Table 6:
Summary of Sample Results

Sample ID	Sample Date	Depth of Sample (feet bgs)	Method 8021B		Method 8015D				Method 300.0	Field screening	
			BTEX	Benzene	GRO	DRO	MRO	Total TPH	Cl-	Cl-	DRO/MRO
			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	(mg/Kg)	(mg/Kg)
NMOCD Closure Criteria (0-4 ft)			50	10	--	--	--	100	600		
NMOCD Closure Criteria (>4 ft)			50	10	--	--	--	1000	20,000		
S1	12/12/2018	Surface	**1236**	**56**	**5500**	**31000**	**13000**	**49500**	80		
S2		Surface	-	-	-	-	-	-	-	1,987	
S3		Surface	-	-	-	-	-	-	-	1,480	2002/2057
S4		Surface	**111.0**	2.0	**840**	**4700**	**1500**	**7040**	**13000**		
S5		Surface	-	-	-	-	-	-	-	1,483	
S6		Surface	**151.0**	1.0	**930**	**8800**	**2600**	**12330**	**700**		
S7		Surface	-	-	-	-	-	-	-	<130	
S8		Surface	-	-	-	-	-	-	-	255	94/139
S9		Surface	-	-	-	-	-	-	-	<130	
S10		Surface	-	-	-	-	-	-	-	<130	79/96
S11		Surface	-		-	-	-	-	-	<130	
S12		Surface	0.062	<0.023	<4.7	<9.3	<46	<60	<30		
S13		Surface	-	-	-	-	-	-	-	<130	
S14		Surface	-	-	-	-	-	-	-	<130	63/83
S15		Surface	-	-	-	-	-	-	-	<130	
S16		Surface	-	-	-	-	-	-	-	<130	216/214
S17		Surface	-	-	-	-	-	-	-	<130	
L1	5/10/2019	0.5	<0.207	<0.023	7.0	1300	480	**1787**	**6000**		
		0.8	-	-	-	-	-	-	-		
L2		0.5	<0.217	<0.024	<4.8	300	160	**460**	**4100**		
		0.6	-	-	-	-	-	-	-		
L3		0.5	0.13	<0.024	12	6600	2000	**8612**	**970**		
		0.8	-	-	<5.0	530	170	**700**	-		
L4		0.5	3.7	<0.12	71	8900	3000	**11971**	**780**		
		0.8	-	-	<5.0	17	<50	17	-		
C1	7/2/2019	Surface	<0.23	<0.025	<5.0	360	260	**620**	**4600**		
C1-R		Surface	<0.21	<0.023	<4.6	29	<43	29	**3900**		
C2		Surface	<0.22	<0.025	<4.9	51	74	**125**	**780**		
C3		Surface	<0.22	<0.025	<5.0	95	160	**255**	**860**		
C4		Surface	<0.23	<0.025	<5.0	<9.8	<49	<63.8	<60		
C5		Surface	<1.09	<0.12	<24	2500	2900	**5400**	320		
BG1		Surface	-	-	-	-	-	-	400		
BG2		Surface	-	-	-	-	-	-	8900		

"--" = Not Analyzed
S/L: Sample or Location ID
C: Baseline sample prior to Cool-Ox® treatment
BG: Background sample

APPENDIX A

C141 Form

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party **DKS Transport LLC**	OGRID P30056
Contact Name **Josh Moser**	Contact Telephone **405-517-2408**
Contact email **jmoser@dkstransport.com**	Incident # *(assigned by OCD)*
Contact mailing address **PO Box 1084, Alva, OK 73717**	

Location of Release Source

Latitude **32.70417** Longitude **-104.21184**
(NAD 83 in decimal degrees to 5 decimal places)

Site Name **DKS Truck Rollover Spill**	Site Type **Intersection of HWY 206 and HWY 235**
Date Release Discovered **12/11/2018**	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
	31	**18S**	**28E**	**Eddy**

Surface Owner: [x] State [ ] Federal [ ] Tribal [ ] Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

[x] Crude Oil	Volume Released (bbls) **10-12**	Volume Recovered (bbls) **~6**
[ ] Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	[ ] Yes [ ] No
[ ] Condensate	Volume Released (bbls)	Volume Recovered (bbls)
[ ] Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
[ ] Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Tanker truck roll-over on HWY 235 (Curry Comb Rd) just before intersection with HWY 206 (Illinois Camp Rd). Roll-over resulted in approximately 10-12 bbls of crude oil spilled onto the ground along west side of HWY 235.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

- ☒ The source of the release has been stopped.
- ☒ The impacted area has been secured to protect human health and the environment.
- ☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Josh Moser Title: Manager DKS Transport

Signature: Josh Moser (Jun 13, 2019) Date: 6/13/19

email: jmoser@dkstransport.com Telephone:

OCD Only

Received by: Date:

APPENDIX B

Correspondence with NMSLO

Stephanie Hinds

From: Mann, Ryan <rmann@slo.state.nm.us>
Sent: Monday, December 17, 2018 2:50 PM
To: Stephanie Hinds
Subject: FW: archeological survey inquiry

Good afternoon,

I hope this helps.

Ryan Mann
Remediation Specialist
Field Operation Division
(575) 392-3697
(505) 699-1989
New Mexico State Land Office
2827 N. Dal Paso Suite 117
Hobbs, NM 88240
***The New Mexico State Land Office will be closed from 12/21/2018 at 1:OO PM – 01/01/2019. The office will reopen on 01/02/2019. Happy Holidays!**

From: Tsesmeli, Evangelia
Sent: Friday, December 14, 2018 3:25 PM
To: Mann, Ryan <rmann@slo.state.nm.us>; Eck, David <deck@slo.state.nm.us>
Subject: RE: archeological survey inquiry

Hello Ryan,

I conducted an ARMS review for the spill area based on the .kmz file Ms. Hinds provided. The northernmost spill seems to have occurred within 60 ft inside the southern part of an area where the Illinois Camp, a historic oil town existed (and features and structural foundations still exist standing to date). This cultural resource has been determined eligible for the inclusion in the National Register of Historic Places. The archaeological surveys conducted for the remaining road ROW cover the extent of the spill as delineated in the .kmz file and yielded no further cultural resources. These surveys include at least a 45 ft buffer zone on each side of the spill. This buffered area should be sufficient for the cleaning of the spill once a ROE is obtained.

There is the possibility of subsurface deposits around the junction area of 206 and 235 (the part of the spill that is 60 ft within the eligible cultural resource) that could be destroyed during the blading/remediation of the spill area. A permitted archaeological monitor should be present during any ground disturbing remediation/cleaning. The archaeological monitor could detect possible cultural deposits not identified during the surface surveys, and assess whether further consultation with SLO archaeologists is necessary.

Lia Tsesmeli, Ph.D.
Trust Land Archaeologist
Field Operations Division
505.827.5792
New Mexico State Land Office

310 Old Santa Fe Trail
P.O. Box 1148
Santa Fe, NM 87504-1148
etsesmeli@slo.state.nm.us
nmstatelands.org

.....

***The New Mexico State Land Office will be closed from 12/21/2018 at 1pm - 01/01/2019. The office will reopen on 01/02/2019. Happy Holidays!**

From: Mann, Ryan
Sent: Friday, December 14, 2018 12:33 PM
To: Eck, David <deck@slo.state.nm.us>; Tsesmeli, Evangelia <etsesmeli@slo.state.nm.us>
Subject: FW: archeological survey inquiry

Can you provide guidance to Ms. Hinds? I believe this will require a ROE and an ARMS review, but I want to double check.

Ryan Mann
Remediation Specialist
Field Operation Division
(575) 392-3697
(505) 699-1989
New Mexico State Land Office
2827 N. Dal Paso Suite 117
Hobbs, NM 88240
***The New Mexico State Land Office will be closed from 12/21/2018 at 1:OO PM – 01/01/2019. The office will reopen on 01/02/2019. Happy Holidays!**

From: Stephanie Hinds [mailto:stephanie.hinds@soudermiller.com]
Sent: Wednesday, December 12, 2018 10:08 PM
To: stucker@blm.gov; Mann, Ryan <rmann@slo.state.nm.us>
Cc: Austin Weyant <austin.weyant@soudermiller.com>; Emme Mayle <Emme.Mayle@soudermiller.com>
Subject: archeological survey inquiry

Hello Ms. Tucker/ Mr. Mann,

SMA completed a delineation assessment of a DKS Transport crude oil spill at the intersection of Highway 235 and Highway 206 south of Artesia (DKS file number P30056) which we believe occurred on 12/11/2018. Will we need to have an archeological review/survey completed for the site prior to breaking ground? We believe much of the spill is within the road ROW, though the wider spots may extend outside of the ROW. I have attached a kmz file showing the approximate extent of the spill. Approximately 450 yds were impacted, mostly as surface staining down to 1-2 feet. We're ready to begin excavation as soon as the arch review is completed (or deemed unnecessary). The site sits at approximately 32.704173,
-104.211836, on the SW ¼ of the NE ¼ of Section 31, T18S R28E. Please don't hesitate to let us know if you need further information from us.

Thanks,
Stephanie Hinds
Staff EIT II

Souder, Miller & Associates
Engineering ♦ Environmental ♦ Surveying
401 W. Broadway
Farmington, NM 87401
O: (505) 325-7535
C: (505) 793-7079
www.soudermiller.com

APPENDIX C

Web Soil Survey Report, February 18, 2020

United States Department of Agriculture

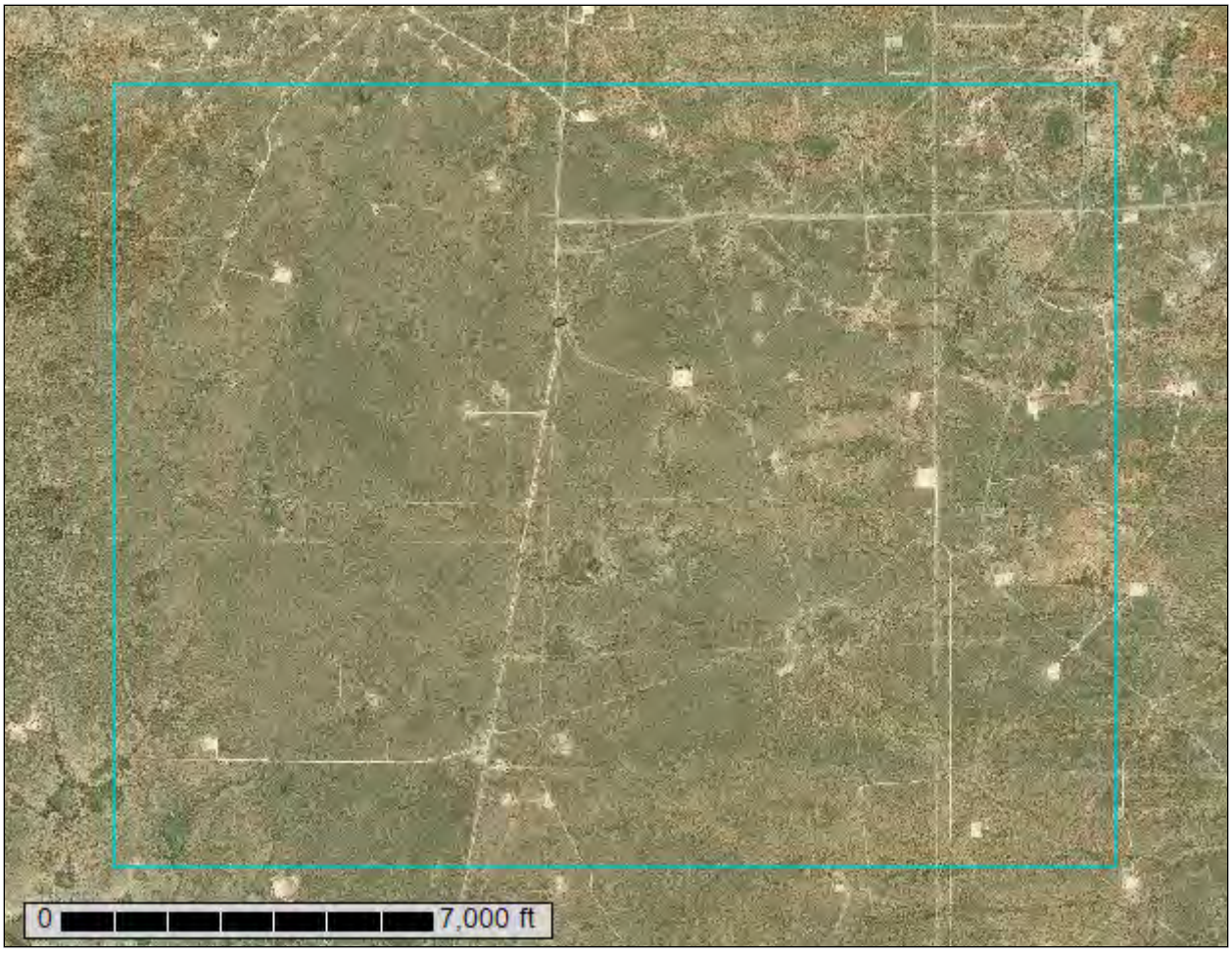
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Eddy Area, New Mexico

DKS Release Location



February 18, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

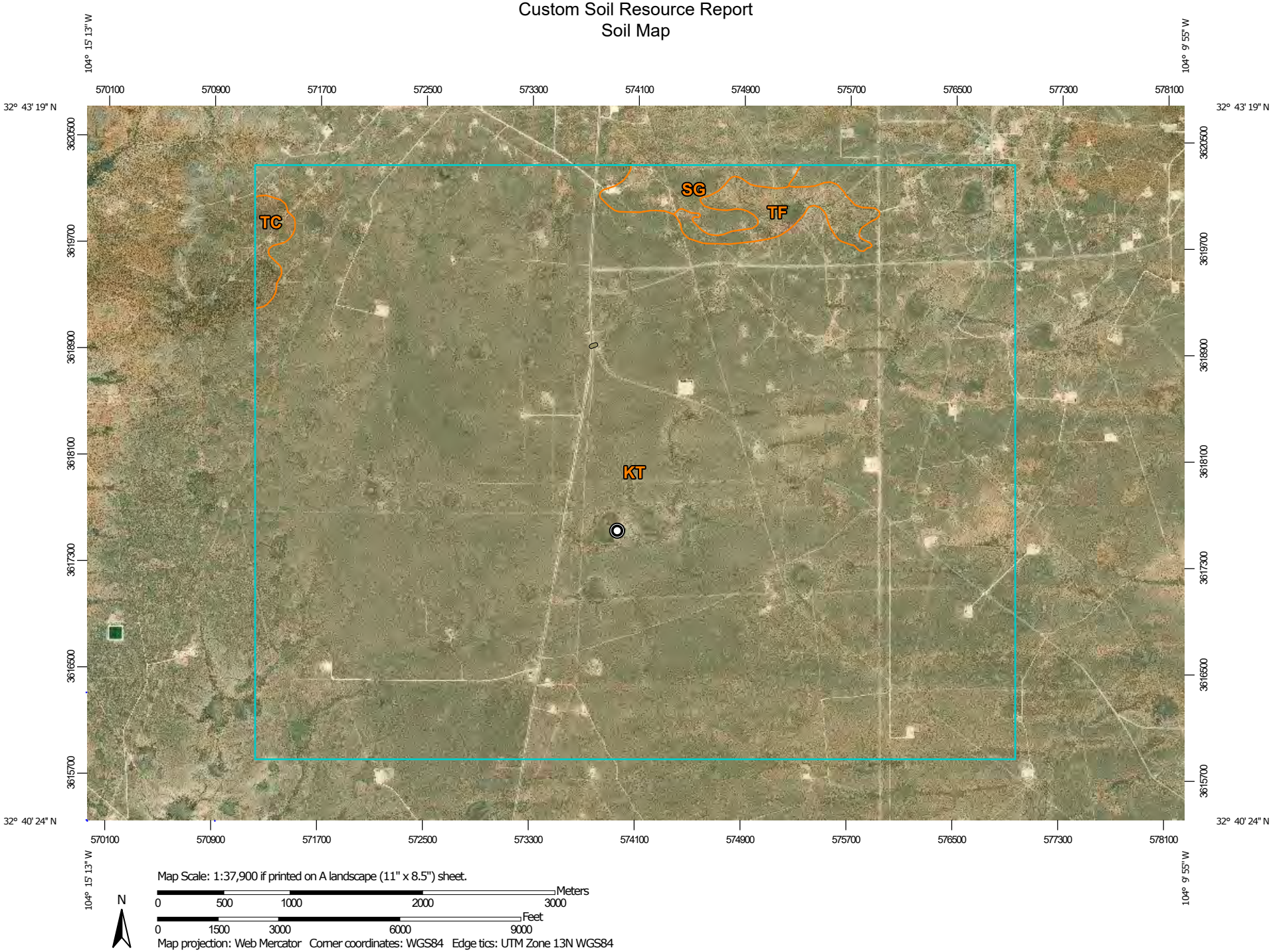
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 15, Sep 15, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 30, 2015—Dec 15, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
KT	Kimbrough-Stegall loams, 0 to 3 percent slopes	6,122.6	96.2%
SG	Simona gravelly fine sandy loam, 0 to 3 percent slopes	103.3	1.6%
TC	Tonuco loamy sand, 0 to 3 percent slopes, eroded	40.4	0.6%
TF	Tonuco loamy fine sand, 0 to 3 percent slopes	99.6	1.6%
Totals for Area of Interest		**6,365.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Eddy Area, New Mexico

KT—Kimbrough-Stegall loams, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1w4t
Elevation: 2,750 to 5,000 feet
Mean annual precipitation: 8 to 16 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 180 to 230 days
Farmland classification: Not prime farmland

Map Unit Composition

Kimbrough and similar soils: 70 percent
Stegall and similar soils: 25 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kimbrough

Setting

Landform: Plains, alluvial fans
Landform position (three-dimensional): Talf, rise
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 3 inches: loam
H2 - 3 to 9 inches: loam
H3 - 9 to 60 inches: indurated

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 8 to 20 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Very low (about 1.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: Shallow (R042XC025NM)
Hydric soil rating: No

Description of Stegall

Setting

Landform: Plains, alluvial fans
Landform position (three-dimensional): Rise
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 5 inches: loam
H2 - 5 to 28 inches: clay loam
H3 - 28 to 32 inches: indurated
H4 - 32 to 60 inches: variable

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 90 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: Loamy (R042XC007NM)
Hydric soil rating: No

Minor Components

Simona

Percent of map unit: 5 percent
Ecological site: Shallow Sandy (R042XC002NM)
Hydric soil rating: No

SG—Simona gravelly fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1w5w
Elevation: 2,750 to 5,000 feet

Mean annual precipitation: 8 to 16 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 180 to 230 days
Farmland classification: Not prime farmland

Map Unit Composition

Simona and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Simona

Setting

Landform: Plains, alluvial fans
Landform position (three-dimensional): Rise
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 19 inches: gravelly fine sandy loam
H2 - 19 to 23 inches: indurated

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: Shallow Sandy (R042XC002NM)
Hydric soil rating: No

Minor Components

Simona

Percent of map unit: 4 percent
Ecological site: Shallow Sandy (R042XC002NM)
Hydric soil rating: No

Playa

Percent of map unit: 1 percent
Landform: Playas
Landform position (three-dimensional): Talf

Down-slope shape: Concave, convex
Across-slope shape: Concave, linear
Ecological site: Bottomland (R042XC017NM)
Hydric soil rating: Yes

TC—Tonuco loamy sand, 0 to 3 percent slopes, eroded

Map Unit Setting

National map unit symbol: 1w60
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 60 to 64 degrees F
Frost-free period: 200 to 217 days
Farmland classification: Not prime farmland

Map Unit Composition

Tonuco and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tonuco

Setting

Landform: Plains, alluvial fans
Landform position (three-dimensional): Rise
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 5 inches: loamy sand
H2 - 5 to 15 inches: loamy fine sand
H3 - 15 to 19 inches: indurated

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 6 to 20 inches to petrocalcic
Natural drainage class: Excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Very low (about 1.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: D
Ecological site: Sandy (R042XC004NM)
Hydric soil rating: No

Minor Components

Tonuco
Percent of map unit: 1 percent
Ecological site: Sandy (R042XC004NM)
Hydric soil rating: No

Dune land
Percent of map unit: 1 percent
Hydric soil rating: No

TF—Tonuco loamy fine sand, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 1w61
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 60 to 64 degrees F
Frost-free period: 200 to 217 days
Farmland classification: Not prime farmland

Map Unit Composition
Tonuco and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tonuco

Setting
Landform: Plains, alluvial fans
Landform position (three-dimensional): Rise
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Mixed alluvium and/or eolian sands

Typical profile
H1 - 0 to 5 inches: loamy fine sand
H2 - 5 to 15 inches: loamy fine sand
H3 - 15 to 19 inches: indurated

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: 6 to 20 inches to petrocalcic
Natural drainage class: Excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Very low (about 1.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: Sandy (R042XC004NM)
Hydric soil rating: No

Minor Components

Tonuco

Percent of map unit: 1 percent
Ecological site: Sandy (R042XC004NM)
Hydric soil rating: No

Dune land

Percent of map unit: 1 percent
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

APPENDIX D

NMOSE Wells Report

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
CP 00478 POD1	CP	ED	1	1	4	05	19S	28E	575300	3617036*	2243	312	145	167
RA 09588	RA	ED		1	2	33	18S	28E	576976	3619384*	3164	300		
CP 00361 POD1	CP	ED	3	1	3	09	19S	28E	576094	3615246*	4162	365	265	100
CP 00502	CP	ED		1	1	18	19S	28E	573001	3614478*	4376	100	91	9
CP 00836 POD1	CP	ED		1	1	18	19S	28E	573001	3614478*	4376	110		
CP 00837 POD1	CP	ED		1	1	18	19S	28E	573001	3614478*	4376	110		
CP 00838 POD1	CP	ED		1	1	18	19S	28E	573001	3614478*	4376	110		

Average Depth to Water: **167 feet**

Minimum Depth: **91 feet**

Maximum Depth: **265 feet**

Record Count: 7

UTMNAD83 Radius Search (in meters):

Easting (X): 573872.32 **Northing (Y):** 3618766.51 **Radius:** 5000

***UTM location was derived from PLSS - see Help**

APPENDIX E

Hall Laboratory Reports

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

December 21, 2018

Austin Weyant
Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL: (575) 689-7040
FAX

RE: DKS Crude Spill OrderNo.: 1812915

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 4 sample(s) on 12/15/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1812915**
Date Reported: **12/21/2018**

CLIENT: Souder, Miller & Associates
Client Sample ID: S1
Project: DKS Crude Spill
Collection Date: 12/12/2018 11:10:00 AM
Lab ID: 1812915-001 **Matrix:** SOIL **Received Date:** 12/15/2018 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	80	30		mg/Kg	20	12/19/2018 5:40:39 PM	42200
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	31000	930		mg/Kg	100	12/19/2018 10:34:58 AM	42175
Motor Oil Range Organics (MRO)	13000	4700		mg/Kg	100	12/19/2018 10:34:58 AM	42175
Surr: DNOP	0	50.6-138	S	%Rec	100	12/19/2018 10:34:58 AM	42175
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	5500	240		mg/Kg	50	12/18/2018 10:53:21 AM	42158
Surr: BFB	486	73.8-119	S	%Rec	50	12/18/2018 10:53:21 AM	42158
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	56	1.2		mg/Kg	50	12/18/2018 10:53:21 AM	42158
Toluene	580	9.8		mg/Kg	200	12/18/2018 10:17:37 PM	42158
Ethylbenzene	180	2.4		mg/Kg	50	12/18/2018 10:53:21 AM	42158
Xylenes, Total	420	4.9		mg/Kg	50	12/18/2018 10:53:21 AM	42158
Surr: 4-Bromofluorobenzene	178	80-120	S	%Rec	50	12/18/2018 10:53:21 AM	42158

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1812915**
Date Reported: **12/21/2018**

CLIENT: Souder, Miller & Associates
Client Sample ID: S4
Project: DKS Crude Spill
Collection Date: 12/12/2018 11:30:00 AM
Lab ID: 1812915-002 **Matrix:** SOIL **Received Date:** 12/15/2018 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	13000	750		mg/Kg	500	12/20/2018 5:43:36 PM	42200
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	4700	92		mg/Kg	10	12/19/2018 11:40:59 AM	42175
Motor Oil Range Organics (MRO)	1500	460		mg/Kg	10	12/19/2018 11:40:59 AM	42175
Surr: DNOP	0	50.6-138	S	%Rec	10	12/19/2018 11:40:59 AM	42175
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	840	230		mg/Kg	50	12/18/2018 11:16:59 AM	42158
Surr: BFB	179	73.8-119	S	%Rec	50	12/18/2018 11:16:59 AM	42158
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	2.0	1.2		mg/Kg	50	12/18/2018 11:16:59 AM	42158
Toluene	33	2.3		mg/Kg	50	12/18/2018 11:16:59 AM	42158
Ethylbenzene	22	2.3		mg/Kg	50	12/18/2018 11:16:59 AM	42158
Xylenes, Total	54	4.7		mg/Kg	50	12/18/2018 11:16:59 AM	42158
Surr: 4-Bromofluorobenzene	112	80-120		%Rec	50	12/18/2018 11:16:59 AM	42158

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1812915**
Date Reported: **12/21/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: S6
Project: DKS Crude Spill
Collection Date: 12/12/2018 11:40:00 AM
Lab ID: 1812915-003 **Matrix:** SOIL **Received Date:** 12/15/2018 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	700	30		mg/Kg	20	12/19/2018 6:05:29 PM	42200
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	8800	100		mg/Kg	10	12/19/2018 12:47:05 PM	42175
Motor Oil Range Organics (MRO)	2600	510		mg/Kg	10	12/19/2018 12:47:05 PM	42175
Surr: DNOP	0	50.6-138	S	%Rec	10	12/19/2018 12:47:05 PM	42175
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	930	99		mg/Kg	20	12/18/2018 10:40:59 PM	42158
Surr: BFB	326	73.8-119	S	%Rec	20	12/18/2018 10:40:59 PM	42158
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	1.0	0.49		mg/Kg	20	12/18/2018 10:40:59 PM	42158
Toluene	39	0.99		mg/Kg	20	12/18/2018 10:40:59 PM	42158
Ethylbenzene	32	0.99		mg/Kg	20	12/18/2018 10:40:59 PM	42158
Xylenes, Total	79	2.0		mg/Kg	20	12/18/2018 10:40:59 PM	42158
Surr: 4-Bromofluorobenzene	141	80-120	S	%Rec	20	12/18/2018 10:40:59 PM	42158

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1812915**
Date Reported: **12/21/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: S12
Project: DKS Crude Spill
Collection Date: 12/12/2018 10:39:00 AM
Lab ID: 1812915-004 **Matrix:** SOIL **Received Date:** 12/15/2018 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	ND	30		mg/Kg	20	12/19/2018 6:17:54 PM	42200
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	12/19/2018 1:53:21 PM	42175
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/19/2018 1:53:21 PM	42175
Surr: DNOP	93.2	50.6-138		%Rec	1	12/19/2018 1:53:21 PM	42175
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/18/2018 12:03:50 PM	42158
Surr: BFB	96.5	73.8-119		%Rec	1	12/18/2018 12:03:50 PM	42158
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	12/18/2018 12:03:50 PM	42158
Toluene	0.062	0.047		mg/Kg	1	12/18/2018 12:03:50 PM	42158
Ethylbenzene	ND	0.047		mg/Kg	1	12/18/2018 12:03:50 PM	42158
Xylenes, Total	ND	0.094		mg/Kg	1	12/18/2018 12:03:50 PM	42158
Surr: 4-Bromofluorobenzene	97.1	80-120		%Rec	1	12/18/2018 12:03:50 PM	42158

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812915**

21-Dec-18

Client: Souder, Miller & Associates

Project: DKS Crude Spill

Sample ID	**MB-42200**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**42200**	RunNo:	**56456**					
Prep Date:	**12/19/2018**	Analysis Date:	**12/19/2018**	SeqNo:	**1889147**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-42200**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**42200**	RunNo:	**56456**					
Prep Date:	**12/19/2018**	Analysis Date:	**12/19/2018**	SeqNo:	**1889148**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812915**

21-Dec-18

Client: Souder, Miller & Associates

Project: DKS Crude Spill

Sample ID	**MB-42175**	SampType:	**MBLK**	TestCode:	**EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID:	**42175**	RunNo:	**56431**					
Prep Date:	**12/18/2018**	Analysis Date:	**12/19/2018**	SeqNo:	**1886912**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.5		10.00		94.9	50.6	138			

Sample ID	**LCS-42175**	SampType:	**LCS**	TestCode:	**EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID:	**42175**	RunNo:	**56431**					
Prep Date:	**12/18/2018**	Analysis Date:	**12/19/2018**	SeqNo:	**1887406**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	101	70	130			
Surr: DNOP	4.3		5.000		86.2	50.6	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812915**

21-Dec-18

Client: Souder, Miller & Associates

Project: DKS Crude Spill

Sample ID	**MB-42158**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**42158**	RunNo:	**56429**					
Prep Date:	**12/17/2018**	Analysis Date:	**12/18/2018**	SeqNo:	**1886718**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		101	73.8	119			

Sample ID	**LCS-42158**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**42158**	RunNo:	**56429**					
Prep Date:	**12/17/2018**	Analysis Date:	**12/18/2018**	SeqNo:	**1886719**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	108	80.1	123			
Surr: BFB	1200		1000		119	73.8	119			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812915**

21-Dec-18

Client: Souder, Miller & Associates

Project: DKS Crude Spill

Sample ID	**MB-42158**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**42158**	RunNo:	**56429**					
Prep Date:	**12/17/2018**	Analysis Date:	**12/18/2018**	SeqNo:	**1886748**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		105	80	120			

Sample ID	**LCS-42158**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**42158**	RunNo:	**56429**					
Prep Date:	**12/17/2018**	Analysis Date:	**12/18/2018**	SeqNo:	**1886749**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	95.3	80	120			
Toluene	1.0	0.050	1.000	0	100	80	120			
Ethylbenzene	1.0	0.050	1.000	0	101	80	120			
Xylenes, Total	3.1	0.10	3.000	0	103	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **SMA-CARLSBAD** Work Order Number: **1812915** RcptNo: **1**

Received By: **Erin Melendrez** **12/15/2018 9:40:00 AM**

Completed By: **Erin Melendrez** **12/17/2018 8:55:45 AM**

Reviewed By: JC 12.17.18

LB-DAD 12/17/18

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 3 (<2 or >12 unless noted)
Adjusted? NO
Checked by: DAD 12/17/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.6	Good	Yes			
2	2.7	Good	Yes			

Chain-of-Custody Record

Client: SMA

Mailing Address: Carlsbad

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☐ Rush

Project Name: DKS Crude Spill

Project #:

Project Manager: Austin Weyant

Sampler: SH / EM

On Ice: X Yes ☐ No

# of Coolers: 2 (CF=0)

Cooler Temp(including CF): 1.6°C, 2.7°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 1812915	BTEX / ~~MTBE~~ / ~~TMB's~~ (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	(Cl), F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
12-12-18	11:10	Soil	S1	(1) 4oz	Cool	-001	X	X					X			
	~~11:30~~ 11:45	Soil	S4			-002	X	X					X			
	11:40		S6			-003	X	X					X			
	10:39		S12			-004	X	X					X			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
		Stephanie Hinds			12/14/18	0830
Date: 12/14/18	Time: 1900	Relinquished by:	Received by:	Via: Courier	Date 12/15/18	Time 0940

Remarks:
Please cc: Stephanie Hinds
stephanie.hinds@sondermiller.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 17, 2019

Jacqui Haris

Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL:
FAX

RE: DKS Crude Oil Spill OrderNo.: 1905612

Dear Jacqui Haris:

Hall Environmental Analysis Laboratory received 8 sample(s) on 5/11/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1905612**
Date Reported: **5/17/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L1-6
Project: DKS Crude Oil Spill
Collection Date: 5/10/2019 9:00:00 AM
Lab ID: 1905612-001 **Matrix:** SOIL **Received Date:** 5/11/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	6000	300		mg/Kg	100	5/16/2019 3:51:48 PM	44920
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	1300	20		mg/Kg	2	5/14/2019 11:25:15 PM	44882
Motor Oil Range Organics (MRO)	480	100		mg/Kg	2	5/14/2019 11:25:15 PM	44882
Surr: DNOP	186	70-130	S	%Rec	2	5/14/2019 11:25:15 PM	44882
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	7.0	4.6		mg/Kg	1	5/14/2019 8:18:47 PM	44877
Surr: BFB	145	73.8-119	S	%Rec	1	5/14/2019 8:18:47 PM	44877
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	5/14/2019 8:18:47 PM	44877
Toluene	ND	0.046		mg/Kg	1	5/14/2019 8:18:47 PM	44877
Ethylbenzene	ND	0.046		mg/Kg	1	5/14/2019 8:18:47 PM	44877
Xylenes, Total	ND	0.092		mg/Kg	1	5/14/2019 8:18:47 PM	44877
Surr: 4-Bromofluorobenzene	98.1	80-120		%Rec	1	5/14/2019 8:18:47 PM	44877

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1905612**
Date Reported: **5/17/2019**

CLIENT: Souder, Miller & Associates
Client Sample ID: L2-6"
Project: DKS Crude Oil Spill
Collection Date: 5/10/2019 9:10:00 AM
Lab ID: 1905612-002 **Matrix:** SOIL **Received Date:** 5/11/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	4100	150		mg/Kg	50	5/16/2019 4:04:13 PM	44920
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	300	9.4		mg/Kg	1	5/15/2019 12:14:07 AM	44882
Motor Oil Range Organics (MRO)	160	47		mg/Kg	1	5/15/2019 12:14:07 AM	44882
Surr: DNOP	209	70-130	S	%Rec	1	5/15/2019 12:14:07 AM	44882
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/14/2019 9:49:22 PM	44877
Surr: BFB	87.5	73.8-119		%Rec	1	5/14/2019 9:49:22 PM	44877
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	5/14/2019 9:49:22 PM	44877
Toluene	ND	0.048		mg/Kg	1	5/14/2019 9:49:22 PM	44877
Ethylbenzene	ND	0.048		mg/Kg	1	5/14/2019 9:49:22 PM	44877
Xylenes, Total	ND	0.097		mg/Kg	1	5/14/2019 9:49:22 PM	44877
Surr: 4-Bromofluorobenzene	89.6	80-120		%Rec	1	5/14/2019 9:49:22 PM	44877

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **1905612**
Date Reported: **5/17/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L3-6"
Project: DKS Crude Oil Spill
Collection Date: 5/10/2019 9:20:00 AM
Lab ID: 1905612-003 **Matrix:** SOIL **Received Date:** 5/11/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	970	61		mg/Kg	20	5/15/2019 1:27:48 PM	44920
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	6600	99		mg/Kg	10	5/14/2019 11:59:02 AM	44882
Motor Oil Range Organics (MRO)	2000	500		mg/Kg	10	5/14/2019 11:59:02 AM	44882
Surr: DNOP	0	70-130	S	%Rec	10	5/14/2019 11:59:02 AM	44882
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	12	4.7		mg/Kg	1	5/14/2019 10:12:03 PM	44877
Surr: BFB	161	73.8-119	S	%Rec	1	5/14/2019 10:12:03 PM	44877
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	5/14/2019 10:12:03 PM	44877
Toluene	ND	0.047		mg/Kg	1	5/14/2019 10:12:03 PM	44877
Ethylbenzene	ND	0.047		mg/Kg	1	5/14/2019 10:12:03 PM	44877
Xylenes, Total	0.13	0.094		mg/Kg	1	5/14/2019 10:12:03 PM	44877
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	5/14/2019 10:12:03 PM	44877

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1905612**
Date Reported: **5/17/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L4-6"
Project: DKS Crude Oil Spill
Collection Date: 5/10/2019 9:30:00 AM
Lab ID: 1905612-004 **Matrix:** SOIL **Received Date:** 5/11/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	780	60		mg/Kg	20	5/15/2019 2:05:01 PM	44920
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	8900	99		mg/Kg	10	5/14/2019 12:47:59 PM	44882
Motor Oil Range Organics (MRO)	3000	500		mg/Kg	10	5/14/2019 12:47:59 PM	44882
Surr: DNOP	0	70-130	S	%Rec	10	5/14/2019 12:47:59 PM	44882
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	71	24		mg/Kg	5	5/14/2019 11:36:56 AM	44877
Surr: BFB	333	73.8-119	S	%Rec	5	5/14/2019 11:36:56 AM	44877
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.12		mg/Kg	5	5/14/2019 11:36:56 AM	44877
Toluene	ND	0.24		mg/Kg	5	5/14/2019 11:36:56 AM	44877
Ethylbenzene	0.76	0.24		mg/Kg	5	5/14/2019 11:36:56 AM	44877
Xylenes, Total	2.9	0.47		mg/Kg	5	5/14/2019 11:36:56 AM	44877
Surr: 4-Bromofluorobenzene	120	80-120	S	%Rec	5	5/14/2019 11:36:56 AM	44877

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1905612**
17-May-19

Client: Souder, Miller & Associates
Project: DKS Crude Oil Spill

Sample ID: **MB-44920**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **44920**	RunNo: **59922**							
Prep Date: **5/14/2019**	Analysis Date: **5/15/2019**	SeqNo: **2022149**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-44920**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **44920**	RunNo: **59922**							
Prep Date: **5/14/2019**	Analysis Date: **5/15/2019**	SeqNo: **2022150**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1905612**

17-May-19

Client: Souder, Miller & Associates

Project: DKS Crude Oil Spill

Sample ID: **LCS-44882** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **44882** RunNo: **59852**

Prep Date: **5/13/2019** Analysis Date: **5/14/2019** SeqNo: **2018959** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	58	10	50.00	0	117	63.9	124			
Surr: DNOP	5.4		5.000		109	70	130			

Sample ID: **MB-44882** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **44882** RunNo: **59852**

Prep Date: **5/13/2019** Analysis Date: **5/14/2019** SeqNo: **2018960** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		113	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1905612**

17-May-19

Client: Souder, Miller & Associates

Project: DKS Crude Oil Spill

Sample ID: **MB-44877**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **44877**	RunNo: **59873**
Prep Date: **5/13/2019**	Analysis Date: **5/14/2019**	SeqNo: **2019795** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	860		1000		85.6	73.8	119			

Sample ID: **LCS-44877**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **44877**	RunNo: **59873**
Prep Date: **5/13/2019**	Analysis Date: **5/14/2019**	SeqNo: **2019796** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	87.6	80.1	123			
Surr: BFB	970		1000		96.9	73.8	119			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1905612**

17-May-19

Client: Souder, Miller & Associates

Project: DKS Crude Oil Spill

Sample ID: **MB-44877**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **44877**	RunNo: **59873**
Prep Date: **5/13/2019**	Analysis Date: **5/14/2019**	SeqNo: **2019823** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.87		1.000		87.2	80	120			

Sample ID: **LCS-44877**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **44877**	RunNo: **59873**
Prep Date: **5/13/2019**	Analysis Date: **5/14/2019**	SeqNo: **2019824** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	110	80	120			
Toluene	0.97	0.050	1.000	0	97.4	80	120			
Ethylbenzene	0.96	0.050	1.000	0	96.1	80	120			
Xylenes, Total	2.8	0.10	3.000	0	94.2	80	120			
Surr: 4-Bromofluorobenzene	0.95		1.000		94.7	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **SMA-CARLSBAD** Work Order Number: **1905612** RcptNo: **1**

Received By: **Thom Maybee** **5/11/2019 9:30:00 AM**

Completed By: **Leah Baca** **5/11/2019 10:35:12 AM** Leah Baca

Reviewed By: YG 5/13/19

Labeled by DAD 5/13/19

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: (<2 or >12 unless noted)
Adjusted?
Checked by: DAD 5/13/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.1	Good	Yes			

Chain-of-Custody Record

Client: SMA Carlsbad

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard ☑ Rush 5-day

Project Name: DKS Crude Oil Spill

Project #:

Project Manager: Jacqui Harris

Sampler: LRB

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 3.1°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 1905612	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	(Cl, F, Br, NO_3, NO_2, PO_4, SO_4)	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5/10/19	9:00	Soil	L1-6"	4oz.		-001	X						X			
	9:10		L2-6"			-002	X						X			
	9:20		L3-6"			-003	X						X			
	9:30		L4-6"			-004	X						X			
	9:05	Rock	L1-10"	Baggie		-005	PLEASE HOLD									
	9:15		L2-8"			-006										
	9:25		L3-10"			-007										
	9:35		L4-10"			-008										

Date	Time	Relinquished by	Received by	Via	Date	Time
5/10/19	12:11	Lyndsey Bradshaw				
5/10/19	1940				5/10/19	1940
				Via: Courier	5-11-19	9.30

Remarks: DKS

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

July 12, 2019

Austin Weyant
Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL:
FAX:

RE: DKS OrderNo.: 1907161

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 8 sample(s) on 7/3/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1907161**
Date Reported: **7/12/2019**

CLIENT: Souder, Miller & Associates
Client Sample ID: C1
Project: DKS
Collection Date: 7/2/2019
Lab ID: 1907161-001 **Matrix:** SOIL **Received Date:** 7/3/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	4600	150		mg/Kg	50	7/10/2019 10:41:08 PM	46086
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	360	9.6		mg/Kg	1	7/8/2019 11:27:52 AM	46009
Motor Oil Range Organics (MRO)	260	48		mg/Kg	1	7/8/2019 11:27:52 AM	46009
Surr: DNOP	101	70-130		%Rec	1	7/8/2019 11:27:52 AM	46009
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/4/2019 4:09:11 PM	46006
Surr: BFB	109	73.8-119		%Rec	1	7/4/2019 4:09:11 PM	46006
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	7/4/2019 4:09:11 PM	46006
Toluene	ND	0.050		mg/Kg	1	7/4/2019 4:09:11 PM	46006
Ethylbenzene	ND	0.050		mg/Kg	1	7/4/2019 4:09:11 PM	46006
Xylenes, Total	ND	0.10		mg/Kg	1	7/4/2019 4:09:11 PM	46006
Surr: 4-Bromofluorobenzene	95.2	80-120		%Rec	1	7/4/2019 4:09:11 PM	46006

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1907161**
Date Reported: **7/12/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: C1-R
Project: DKS
Collection Date: 7/2/2019
Lab ID: 1907161-002 **Matrix:** SOIL **Received Date:** 7/3/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	3900	150		mg/Kg	50	7/10/2019 10:53:32 PM	46086
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	29	8.7		mg/Kg	1	7/5/2019 3:57:16 PM	46009
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	7/5/2019 3:57:16 PM	46009
Surr: DNOP	91.3	70-130		%Rec	1	7/5/2019 3:57:16 PM	46009
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	7/4/2019 4:31:55 PM	46006
Surr: BFB	107	73.8-119		%Rec	1	7/4/2019 4:31:55 PM	46006
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	7/4/2019 4:31:55 PM	46006
Toluene	ND	0.046		mg/Kg	1	7/4/2019 4:31:55 PM	46006
Ethylbenzene	ND	0.046		mg/Kg	1	7/4/2019 4:31:55 PM	46006
Xylenes, Total	ND	0.092		mg/Kg	1	7/4/2019 4:31:55 PM	46006
Surr: 4-Bromofluorobenzene	98.9	80-120		%Rec	1	7/4/2019 4:31:55 PM	46006

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1907161**
Date Reported: **7/12/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates **Client Sample ID:** C2
Project: DKS **Collection Date:** 7/2/2019
Lab ID: 1907161-003 **Matrix:** SOIL **Received Date:** 7/3/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	780	60		mg/Kg	20	7/9/2019 9:15:42 PM	46086
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**JME**
Diesel Range Organics (DRO)	51	9.9		mg/Kg	1	7/5/2019 4:21:55 PM	46009
Motor Oil Range Organics (MRO)	74	50		mg/Kg	1	7/5/2019 4:21:55 PM	46009
Surr: DNOP	89.2	70-130		%Rec	1	7/5/2019 4:21:55 PM	46009
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/4/2019 4:54:41 PM	46006
Surr: BFB	105	73.8-119		%Rec	1	7/4/2019 4:54:41 PM	46006
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.025		mg/Kg	1	7/4/2019 4:54:41 PM	46006
Toluene	ND	0.049		mg/Kg	1	7/4/2019 4:54:41 PM	46006
Ethylbenzene	ND	0.049		mg/Kg	1	7/4/2019 4:54:41 PM	46006
Xylenes, Total	ND	0.099		mg/Kg	1	7/4/2019 4:54:41 PM	46006
Surr: 4-Bromofluorobenzene	97.8	80-120		%Rec	1	7/4/2019 4:54:41 PM	46006

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1907161**
Date Reported: **7/12/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: C3
Project: DKS
Collection Date: 7/2/2019
Lab ID: 1907161-004 **Matrix:** SOIL **Received Date:** 7/3/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**smb**
Chloride	860	60		mg/Kg	20	7/10/2019 3:39:17 PM	46094
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	95	9.9		mg/Kg	1	7/11/2019 2:07:13 PM	46120
Motor Oil Range Organics (MRO)	160	49		mg/Kg	1	7/11/2019 2:07:13 PM	46120
Surr: DNOP	73.6	70-130		%Rec	1	7/11/2019 2:07:13 PM	46120
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/4/2019 5:17:26 PM	46006
Surr: BFB	102	73.8-119		%Rec	1	7/4/2019 5:17:26 PM	46006
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.025		mg/Kg	1	7/4/2019 5:17:26 PM	46006
Toluene	ND	0.050		mg/Kg	1	7/4/2019 5:17:26 PM	46006
Ethylbenzene	ND	0.050		mg/Kg	1	7/4/2019 5:17:26 PM	46006
Xylenes, Total	ND	0.099		mg/Kg	1	7/4/2019 5:17:26 PM	46006
Surr: 4-Bromofluorobenzene	94.8	80-120		%Rec	1	7/4/2019 5:17:26 PM	46006

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1907161**
Date Reported: **7/12/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates **Client Sample ID:** C4
Project: DKS **Collection Date:** 7/2/2019
Lab ID: 1907161-005 **Matrix:** SOIL **Received Date:** 7/3/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	ND	60		mg/Kg	20	7/9/2019 9:52:56 PM	46086
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**JME**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	7/5/2019 6:01:19 PM	46009
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/5/2019 6:01:19 PM	46009
Surr: DNOP	106	70-130		%Rec	1	7/5/2019 6:01:19 PM	46009
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/4/2019 5:40:12 PM	46006
Surr: BFB	103	73.8-119		%Rec	1	7/4/2019 5:40:12 PM	46006
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.025		mg/Kg	1	7/4/2019 5:40:12 PM	46006
Toluene	ND	0.050		mg/Kg	1	7/4/2019 5:40:12 PM	46006
Ethylbenzene	ND	0.050		mg/Kg	1	7/4/2019 5:40:12 PM	46006
Xylenes, Total	ND	0.10		mg/Kg	1	7/4/2019 5:40:12 PM	46006
Surr: 4-Bromofluorobenzene	95.0	80-120		%Rec	1	7/4/2019 5:40:12 PM	46006

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1907161**
Date Reported: **7/12/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: C5
Project: DKS
Collection Date: 7/2/2019
Lab ID: 1907161-006 **Matrix:** SOIL **Received Date:** 7/3/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	320	60		mg/Kg	20	7/9/2019 10:05:21 PM	46086
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**JME**
Diesel Range Organics (DRO)	2500	94		mg/Kg	10	7/5/2019 6:26:10 PM	46009
Motor Oil Range Organics (MRO)	2900	470		mg/Kg	10	7/5/2019 6:26:10 PM	46009
Surr: DNOP	0	70-130	S	%Rec	10	7/5/2019 6:26:10 PM	46009
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	24	D	mg/Kg	5	7/4/2019 6:02:57 PM	46006
Surr: BFB	113	73.8-119	D	%Rec	5	7/4/2019 6:02:57 PM	46006
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.12	D	mg/Kg	5	7/4/2019 6:02:57 PM	46006
Toluene	ND	0.24	D	mg/Kg	5	7/4/2019 6:02:57 PM	46006
Ethylbenzene	ND	0.24	D	mg/Kg	5	7/4/2019 6:02:57 PM	46006
Xylenes, Total	ND	0.49	D	mg/Kg	5	7/4/2019 6:02:57 PM	46006
Surr: 4-Bromofluorobenzene	102	80-120	D	%Rec	5	7/4/2019 6:02:57 PM	46006

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1907161**
Date Reported: **7/12/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BG-1
Project: DKS
Collection Date: 7/2/2019
Lab ID: 1907161-007 **Matrix:** SOIL **Received Date:** 7/3/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	400	60		mg/Kg	20	7/9/2019 10:17:46 PM	46086

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1907161**
Date Reported: **7/12/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BG-2
Project: DKS
Collection Date: 7/2/2019
Lab ID: 1907161-008 **Matrix:** SOIL **Received Date:** 7/3/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	8900	300		mg/Kg	100	7/10/2019 11:05:57 PM	46086

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907161**

12-Jul-19

Client: Souder, Miller & Associates

Project: DKS

Sample ID: **MB-46086**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **46086**	RunNo: **61239**							
Prep Date: **7/9/2019**	Analysis Date: **7/9/2019**	SeqNo: **2078063**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-46086**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **46086**	RunNo: **61239**							
Prep Date: **7/9/2019**	Analysis Date: **7/9/2019**	SeqNo: **2078064**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.3	90	110			

Sample ID: **MB-46094**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **46094**	RunNo: **61307**							
Prep Date: **7/10/2019**	Analysis Date: **7/10/2019**	SeqNo: **2078230**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-46094**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **46094**	RunNo: **61307**							
Prep Date: **7/10/2019**	Analysis Date: **7/10/2019**	SeqNo: **2078231**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907161**

12-Jul-19

Client: Souder, Miller & Associates

Project: DKS

Sample ID: **MB-45994**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **45994**	RunNo: **61163**							
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2072907**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.3		10.00		83.3	70	130			

Sample ID: **MB-46009**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **46009**	RunNo: **61163**							
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2072908**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.0		10.00		89.5	70	130			

Sample ID: **LCS-45994**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **45994**	RunNo: **61163**							
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2072909**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.0		5.000		80.7	70	130			

Sample ID: **LCS-46009**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **46009**	RunNo: **61163**							
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2072910**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	56	10	50.00	0	111	63.9	124			
Surr: DNOP	5.4		5.000		109	70	130			

Sample ID: **LCS-46087**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **46087**	RunNo: **61294**							
Prep Date: **7/9/2019**	Analysis Date: **7/10/2019**	SeqNo: **2077836**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	6.8		5.000		135	70	130			S

Sample ID: **MB-46087**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **46087**	RunNo: **61294**							
Prep Date: **7/9/2019**	Analysis Date: **7/10/2019**	SeqNo: **2077837**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	15		10.00		147	70	130			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907161**

12-Jul-19

Client: Souder, Miller & Associates

Project: DKS

Sample ID: **LCS-46120**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **46120**	RunNo: **61303**
Prep Date: **7/11/2019**	Analysis Date: **7/11/2019**	SeqNo: **2078451** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	53	10	50.00	0	105	63.9	124			
Surr: DNOP	4.5		5.000		89.3	70	130			

Sample ID: **MB-46120**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **46120**	RunNo: **61303**
Prep Date: **7/11/2019**	Analysis Date: **7/11/2019**	SeqNo: **2078452** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.4		10.00		93.6	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907161**

12-Jul-19

Client: Souder, Miller & Associates

Project: DKS

Sample ID: **MB-46006**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **46006**	RunNo: **61152**
Prep Date: **7/3/2019**	Analysis Date: **7/4/2019**	SeqNo: **2072252** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		105	73.8	119			

Sample ID: **LCS-46006**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **46006**	RunNo: **61152**
Prep Date: **7/3/2019**	Analysis Date: **7/4/2019**	SeqNo: **2072253** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	96.4	80.1	123			
Surr: BFB	1200		1000		120	73.8	119			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907161**

12-Jul-19

Client: Souder, Miller & Associates

Project: DKS

Sample ID: **MB-46006**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **46006**	RunNo: **61152**
Prep Date: **7/3/2019**	Analysis Date: **7/4/2019**	SeqNo: **2072290** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.97		1.000		97.2	80	120			

Sample ID: **LCS-46006**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **46006**	RunNo: **61152**
Prep Date: **7/3/2019**	Analysis Date: **7/4/2019**	SeqNo: **2072291** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	101	80	120			
Toluene	1.0	0.050	1.000	0	100	80	120			
Ethylbenzene	0.99	0.050	1.000	0	98.5	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.9	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **SMA-CARLSBAD** Work Order Number: **1907161** RcptNo: 1

Received By: **Leah Baca** **7/3/2019 8:55:00 AM** Leah Baca

Completed By: **Isaiah Ortiz** **7/3/2019 11:07:39 AM** I-Ort

Reviewed By: LB 7/3/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: DAD 7/3/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.6	Good	Yes			
2	3.9	Good	Yes			

Chain-of-Custody Record

Client: SMA CBD

Mailing Address: 201 S HALAGUENO

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard ☑ Rush 5DAY

Project Name: DKS

Project #:

Project Manager: AUSTIN WEYANT

Sampler: JAW

On Ice: ☑ Yes ☐ No

# of Coolers: 2

Cooler Temp(including CF): 2.1+CF 0.5=2.6C 3.4+CF 0.5=3.9C

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 1907161	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
7/2		SOIL	C1	4oz 1		-001	X	X					X			
			C1-R2	4oz 1		-002	X	X					X			
			C2	4oz 1		-003	X	X					X			
			C3	4oz 1		-004	X	X					X			
			C4	4oz 1		-005	X	X					X			
			C5	4oz 1		-006	X	X					X			
			BG-1	4oz 1		-007							X			
			BG-2	4oz 1		-008							X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
					7/2/19	1300
7/2/19	1900		Leahs	Courier	7/3/19	0855

Remarks: DKS

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

APPENDIX F

EPA Visual Sampling Plan

VSP Sample Design Report for Using Stratified Sampling to Estimate the Population Proportion

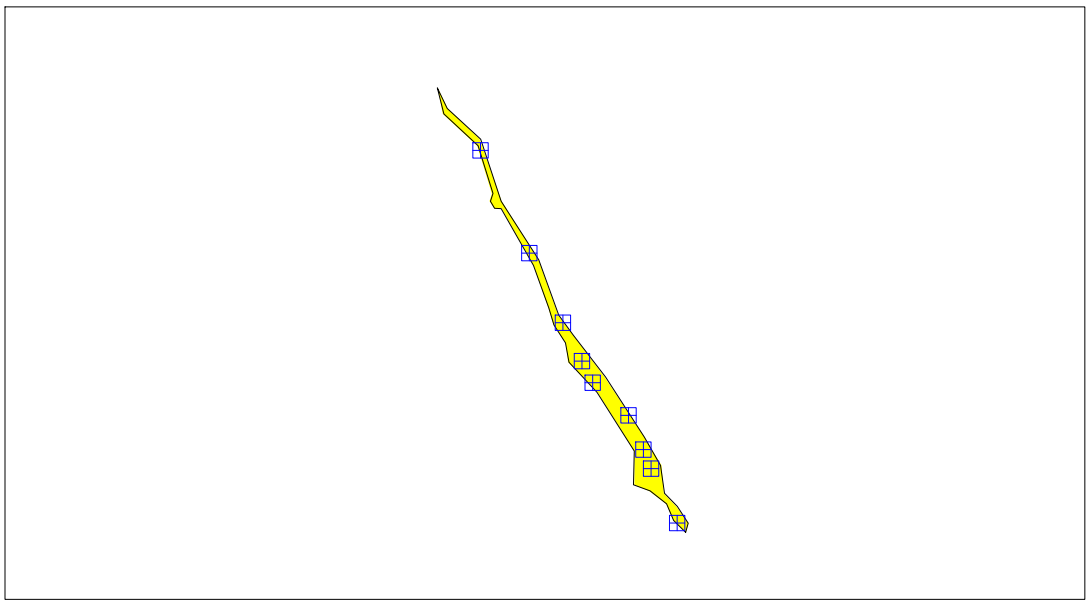
Summary

This report summarizes the stratified sampling design used, associated statistical assumptions, as well as general guidelines for conducting post-sampling data analysis. Sampling plan components presented here include how many sampling locations to choose and where within the sampling area to collect those samples. The type of medium to sample (i.e., soil, groundwater, etc.) and how to analyze the samples (in-situ, fixed laboratory, etc.) are addressed in other sections of the sampling plan. It is important to note that the decision for sample size calculation is determined for the combined strata, rather than any individual strata.

The following table summarizes the proportion stratified sampling design developed. A figure that shows sampling locations in the field and a table that lists sampling location coordinates are also provided below.

SUMMARY OF SAMPLING DESIGN	
Primary Objective of Design	Estimate the population proportion of all strata combined
Criteria for Determining Total Number of Samples	Achieve pre-specified precision of the estimated proportion for specified stratum costs, but no restriction on total costs
Sample Placement (Location) in the Field	Random sampling within grids within each stratum
Formula for calculating number of sampling locations	From Gilbert (1987, page 51)
Method for calculating number of sampling locations in each stratum	Optimal Allocation
Calculated total number of samples	9
Stratum 1	9
Total area of all strata	891.88 m^2
Total cost of sampling [a]	

[a] Including measurement analyses and fixed overhead costs. See the Cost of Sampling section for an explanation of the costs presented here.



Area: Area 1

X Coord	Y Coord	Label	Value	Type	Historical	Sample Area
-11600796.6066	3856084.9773			Random in Grid		
-11600807.2377	3856107.1434			Random in Grid		
-11600810.3285	3856114.8886			Random in Grid		
-11600816.4153	3856128.8201			Random in Grid		
-11600835.3214	3856150.8987			Random in Grid		
-11600830.9739	3856142.0953			Random in Grid		
-11600843.1128	3856166.4948			Random in Grid		
-11600856.7885	3856194.8614			Random in Grid		
-11600876.6038	3856236.6671			Random in Grid		

Primary Sampling Objective
The primary purpose of sampling at this site is to estimate the proportion for the entire site, i.e., for all strata combined, such that the estimated proportion has the minimum possible standard deviation under the condition that the sampling and measurement costs cannot exceed a specified amount. Preexisting information was used to divide the site into 1 non-overlapping strata that were expected to be more homogeneous internally than for the entire site (all strata combined). The expected variability of values within each stratum was estimated or approximated, and the stratum weights, W_h, were determined so that the total number of samples could be allocated appropriately among the strata.

Number of Total Samples: Calculation Equation and Inputs
The total number of samples is computed to achieve the pre-specified precision of the estimated population proportion for specified stratum costs, but no restriction on total costs. *Note that the calculation is for the total number of samples, i.e., for combined strata, rather than individual strata.*

The formula used to calculate the total number of samples is:

$$n = \frac{\left(\sum_{h=1}^{L} W_h \sqrt{P_h(1-P_h)}\sqrt{c_h}\right)\sum_{h=1}^{L}\frac{W_h\sqrt{P_h(1-P_h)}}{\sqrt{c_h}}}{V + \frac{1}{N}\sum_{h=1}^{L} W_h P_h(1-P_h)}$$

where
L is the number of strata, $h=1,2,...,L$,
P_h is the estimated proportion of measurements in stratum h,
$W_h = N_h / N$ is the weight associated with stratum h,
N_h is the total number of possible sampling locations (units) in stratum h,
N is the total number of possible units in all strata combined, $N = \sum_{h=1}^{L} N_h$
V is the pre-specified variance or precision, and
c_h is the cost of collecting and measuring a sample in stratum h.

The values of these inputs that result in the calculated number of sampling locations are:

Parameter	Stratum
	1
P_h	0.2
C_h	
W_h	891.883

Parameter	Input Value

V 1

Allocation of Samples to Strata
The total number of samples is allocated to the individual strata on an optimal basis using the formula:

$$n_h = n \frac{N_h \sqrt{P_h(1-P_h)} / \sqrt{c_h}}{\sum_{h=1}^{L} N_h \sqrt{P_h(1-P_h)} / \sqrt{c_h}}$$

where
n_h is the number of samples allocated to stratum h,
L is the number of strata,
N_h is the total number of units in stratum h,
P_h is the proportion in stratum h,
c_h is the cost per population unit in stratum h.

n is the total number of units sampled in all strata, $n = \sum_{h=1}^{L} n_h$

Using this formula, the number of samples allocated to each stratum is:

Stratum	Number of Samples
1	9
Total Samples	9

Method for Determining Sampling Locations
Five methods for determining sample locations are provided in VSP: 1) simple random sampling, 2) random sampling within grids, 3) systematic sampling with a random start, 4) systematic sampling with a fixed start and 5) adaptive grid sampling. One may use a different method for each stratum, based on the conceptual site model and decision to be made for a given stratum. For this site, sample locations were chosen using random sampling within grids in each stratum.

Locating the sample points using a random sampling within grids method combines appealing aspects of both the random and the systematic grid methods. It provides data that are separated by many distances, providing information about the spatial structure of the potential contamination. It also ensures good coverage of the entire site, although not as completely as if systematic grid sampling were performed.

Statistical Assumptions
The assumptions associated with the formulas for computing the number of samples are:
1. The estimated stratum proportions, P_h, are reasonable and representative of the stratum populations being sampled.
2. The sampling locations are selected using simple random sampling.
3. The stratum costs, C_h, and the fixed cost C_0, are accurate.

The first and third assumptions will be assessed in a post data collection analysis. The second assumption, although not strictly valid for strata where systematic grid sampling was used rather than simple random sampling, is not expected to significantly affect conclusions of the study because (1) the gridded sample locations were selected based on a random start and (2) any patterns of contamination in the field that may exist are not expected to coincide with the regularity of the grid sampling pattern.

Cost of Sampling
The total cost of the completed sampling program depends on several cost inputs, some of which are fixed, and others that are based on the number of samples collected and measured. Based on the numbers of samples determined above, the estimated total cost of sampling and analysis at this site is $5,500.00, which averages out to a per sample cost of $611.11. The following table summarizes the inputs and resulting cost estimates.

COST INFORMATION

Stratum	Samples	Collection Cost Per Sample	Analytic Cost Per Sample	Total Cost
1	9			
Total Samples:	**9**		**Subtotal:**	
			Fixed Startup Cost:	
			Grand Total:	

Recommended Data Analysis Activities

Post data collection activities generally follow those outlined in EPA's Guidance for Data Quality Assessment (EPA, 2000). The data analysts will become familiar with the context of the problem and goals for data collection and assessment. The data will be verified and validated before being subjected to statistical or other analyses. Graphical and analytical tools will be used to verify to the extent possible the assumptions of any statistical analyses that are performed as well as to achieve a general understanding of the data. The data will be assessed to determine whether they are adequate in both quality and quantity to support the primary objective of sampling.

Estimates for the proportion of the population values will be calculated using the formulas appropriate for stratified sampling; these formulas are found in EPA QA/G-5S (EPA, 2001). Results of the exploratory and quantitative assessments of the data will be reported, along with conclusions that may be supported by them.

ATTACHMENT 3: LABORATORY ANALYTICAL REPORTS

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Certificate of Analysis Summary 671127

LT Environmental, Inc., Arvada, CO

Project Name: DKS Transport Truck Rollover

Project Id: 104320001
Contact: Dan Moir
Project Location:

Date Received in Lab: Wed 08.26.2020 17:15
Report Date: 08.31.2020 10:02
Project Manager: Jessica Kramer

Analysis Requested											
	Lab Id:	671127-001		671127-002		671127-003					
	Field Id:	SS01		SS02		SS03					
	Depth:	0.5- ft		0.5- ft		0.5- ft					
	Matrix:	SOIL		SOIL		SOIL					
	Sampled:	08.26.2020 12:10		08.26.2020 12:25		08.26.2020 12:35					
BTEX by EPA 8021B	***Extracted:***	08.27.2020 12:30		08.27.2020 12:30		08.27.2020 12:30					
	Analyzed:	08.27.2020 14:28		08.27.2020 14:49		08.27.2020 15:09					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Benzene		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199				
Toluene		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199				
Ethylbenzene		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199				
m,p-Xylenes		<0.00399	0.00399	<0.00398	0.00398	<0.00398	0.00398				
o-Xylene		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199				
Total Xylenes		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199				
Total BTEX		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199				
Chloride by EPA 300	***Extracted:***	08.27.2020 13:02		08.27.2020 13:02		08.27.2020 13:02					
	Analyzed:	08.27.2020 14:40		08.27.2020 14:51		08.27.2020 14:57					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		2420	49.6	44.2	9.96	511	9.98				
TPH by SW8015 Mod	***Extracted:***	08.27.2020 13:00		08.27.2020 13:00		08.27.2020 13:00					
	Analyzed:	08.27.2020 15:48		08.27.2020 16:09		08.27.2020 20:53					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		<49.8	49.8	<50.0	50.0	<49.9	49.9				
Diesel Range Organics (DRO)		112	49.8	<50.0	50.0	4430	49.9				
Motor Oil Range Hydrocarbons (MRO)		<49.8	49.8	<50.0	50.0	713	49.9				
Total GRO-DRO		112	49.8	<50.0	50.0	4430	49.9				
Total TPH		112	49.8	<50.0	50.0	5140	49.9				

BRL - Below Reporting Limit

Jessica Kramer

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

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Analytical Report 671127

for

LT Environmental, Inc.

Project Manager: Dan Moir

DKS Transport Truck Rollover

104320001

08.31.2020

Collected By: Client

1089 N Canal Street
Carlsbad, NM 88220

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-37), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)

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08.31.2020

Project Manager: **Dan Moir**
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, CO 80003

Reference: Eurofins Xenco, LLC Report No(s): **671127**
DKS Transport Truck Rollover
Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 671127. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 671127 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer

Jessica Kramer
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

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Sample Cross Reference 671127

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SS01	S	08.26.2020 12:10	0.5 ft	671127-001
SS02	S	08.26.2020 12:25	0.5 ft	671127-002
SS03	S	08.26.2020 12:35	0.5 ft	671127-003

CASE NARRATIVE

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Client Name: LT Environmental, Inc.

Project Name: DKS Transport Truck Rollover

Project ID: *104320001*
Work Order Number(s): *671127*

Report Date: *08.31.2020*
Date Received: *08.26.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

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Certificate of Analytical Results 671127

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**SS01**	Matrix:	Soil	Date Received:	08.26.2020 17:15
Lab Sample Id:	671127-001	Date Collected:	08.26.2020 12:10	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	08.27.2020 13:02	Basis:	Wet Weight
Seq Number:	3135806				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2420**	49.6	mg/kg	08.27.2020 14:40		5

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	08.27.2020 13:00	Basis:	Wet Weight
Seq Number:	3135805				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	08.27.2020 15:48	U	1
Diesel Range Organics (DRO)	C10C28DRO	**112**	49.8	mg/kg	08.27.2020 15:48		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	08.27.2020 15:48	U	1
Total GRO-DRO	PHC628	**112**	49.8	mg/kg	08.27.2020 15:48		1
Total TPH	PHC635	**112**	49.8	mg/kg	08.27.2020 15:48		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	126	%	70-135	08.27.2020 15:48	
o-Terphenyl	84-15-1	119	%	70-135	08.27.2020 15:48	

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Certificate of Analytical Results 671127

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**SS01**	Matrix:	Soil	Date Received:	08.26.2020 17:15
Lab Sample Id:	671127-001	Date Collected:	08.26.2020 12:10	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	08.27.2020 12:30	Basis:	Wet Weight
Seq Number:	3135786				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.27.2020 14:28	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.27.2020 14:28	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	08.27.2020 14:28	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	08.27.2020 14:28	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	08.27.2020 14:28	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	08.27.2020 14:28	U	1
Total BTEX		<0.00200	0.00200	mg/kg	08.27.2020 14:28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	100	%	70-130	08.27.2020 14:28	
4-Bromofluorobenzene	460-00-4	104	%	70-130	08.27.2020 14:28	

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Certificate of Analytical Results 671127

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**SS02**	Matrix:	Soil	Date Received:	08.26.2020 17:15
Lab Sample Id:	671127-002	Date Collected:	08.26.2020 12:25	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	08.27.2020 13:02	Basis:	Wet Weight
Seq Number:	3135806				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**44.2**	9.96	mg/kg	08.27.2020 14:51		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	08.27.2020 13:00	Basis:	Wet Weight
Seq Number:	3135805				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	08.27.2020 16:09	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	08.27.2020 16:09	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	08.27.2020 16:09	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	08.27.2020 16:09	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	08.27.2020 16:09	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	129	%	70-135	08.27.2020 16:09	
o-Terphenyl	84-15-1	117	%	70-135	08.27.2020 16:09	

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Certificate of Analytical Results 671127

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**SS02**	Matrix:	Soil	Date Received:	08.26.2020 17:15
Lab Sample Id:	671127-002	Date Collected:	08.26.2020 12:25	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	08.27.2020 12:30	Basis:	Wet Weight
Seq Number:	3135786				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	08.27.2020 14:49	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	08.27.2020 14:49	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	08.27.2020 14:49	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	08.27.2020 14:49	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	08.27.2020 14:49	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	08.27.2020 14:49	U	1
Total BTEX		<0.00199	0.00199	mg/kg	08.27.2020 14:49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	96	%	70-130	08.27.2020 14:49	
4-Bromofluorobenzene	460-00-4	100	%	70-130	08.27.2020 14:49	

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Certificate of Analytical Results 671127

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**SS03**	Matrix:	Soil	Date Received:	08.26.2020 17:15
Lab Sample Id:	671127-003	Date Collected:	08.26.2020 12:35	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	08.27.2020 13:02	Basis:	Wet Weight
Seq Number:	3135806				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**511**	9.98	mg/kg	08.27.2020 14:57		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	08.27.2020 13:00	Basis:	Wet Weight
Seq Number:	3135805				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	08.27.2020 20:53	U	1
Diesel Range Organics (DRO)	C10C28DRO	**4430**	49.9	mg/kg	08.27.2020 20:53		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**713**	49.9	mg/kg	08.27.2020 20:53		1
Total GRO-DRO	PHC628	**4430**	49.9	mg/kg	08.27.2020 20:53		1
Total TPH	PHC635	**5140**	49.9	mg/kg	08.27.2020 20:53		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	126	%	70-135	08.27.2020 20:53	
o-Terphenyl	84-15-1	124	%	70-135	08.27.2020 20:53	

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Certificate of Analytical Results 671127

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**SS03**	Matrix:	Soil	Date Received:	08.26.2020 17:15
Lab Sample Id:	671127-003	Date Collected:	08.26.2020 12:35	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	08.27.2020 12:30	Basis:	Wet Weight
Seq Number:	3135786				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	08.27.2020 15:09	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	08.27.2020 15:09	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	08.27.2020 15:09	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	08.27.2020 15:09	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	08.27.2020 15:09	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	08.27.2020 15:09	U	1
Total BTEX		<0.00199	0.00199	mg/kg	08.27.2020 15:09	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	101	%	70-130	08.27.2020 15:09	
4-Bromofluorobenzene	460-00-4	97	%	70-130	08.27.2020 15:09	

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Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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QC Summary 671127

LT Environmental, Inc.

DKS Transport Truck Rollover

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3135806 — Matrix: Solid — Date Prep: 08.27.2020
MB Sample Id: 7710280-1-BLK — LCS Sample Id: 7710280-1-BKS — LCSD Sample Id: 7710280-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	263	105	265	106	90-110	1	20	mg/kg	08.27.2020 12:54	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3135806 — Matrix: Soil — Date Prep: 08.27.2020
Parent Sample Id: 671092-003 — MS Sample Id: 671092-003 S — MSD Sample Id: 671092-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	85.2	199	290	103	289	102	90-110	0	20	mg/kg	08.27.2020 13:11	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3135806 — Matrix: Soil — Date Prep: 08.27.2020
Parent Sample Id: 671112-008 — MS Sample Id: 671112-008 S — MSD Sample Id: 671112-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	8.29	199	210	101	210	101	90-110	0	20	mg/kg	08.27.2020 14:29	

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3135805 — Matrix: Solid — Date Prep: 08.27.2020
MB Sample Id: 7710279-1-BLK — LCS Sample Id: 7710279-1-BKS — LCSD Sample Id: 7710279-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	1000	100	964	96	70-135	4	35	mg/kg	08.27.2020 13:47	
Diesel Range Organics (DRO)	<50.0	1000	1080	108	1050	105	70-135	3	35	mg/kg	08.27.2020 13:47	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	117		127		132		70-135	%	08.27.2020 13:47
o-Terphenyl	114		127		118		70-135	%	08.27.2020 13:47

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3135805 — Matrix: Solid — Date Prep: 08.27.2020
MB Sample Id: 7710279-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	08.27.2020 13:27	

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

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QC Summary 671127

LT Environmental, Inc.

DKS Transport Truck Rollover

Analytical Method: **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3135805 Matrix: Soil Date Prep: 08.27.2020
Parent Sample Id: 671126-001 MS Sample Id: 671126-001 S MSD Sample Id: 671126-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	999	947	95	969	97	70-135	2	35	mg/kg	08.27.2020 14:47	
Diesel Range Organics (DRO)	<50.0	999	1040	104	1050	105	70-135	1	35	mg/kg	08.27.2020 14:47	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	132		134		70-135	%	08.27.2020 14:47
o-Terphenyl	124		124		70-135	%	08.27.2020 14:47

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3135786 Matrix: Solid Date Prep: 08.27.2020
MB Sample Id: 7710267-1-BLK LCS Sample Id: 7710267-1-BKS LCSD Sample Id: 7710267-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.104	104	0.101	101	70-130	3	35	mg/kg	08.27.2020 11:30	
Toluene	<0.00200	0.100	0.100	100	0.0974	97	70-130	3	35	mg/kg	08.27.2020 11:30	
Ethylbenzene	<0.00200	0.100	0.106	106	0.102	102	71-129	4	35	mg/kg	08.27.2020 11:30	
m,p-Xylenes	<0.00400	0.200	0.213	107	0.209	105	70-135	2	35	mg/kg	08.27.2020 11:30	
o-Xylene	<0.00200	0.100	0.105	105	0.102	102	71-133	3	35	mg/kg	08.27.2020 11:30	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		98		97		70-130	%	08.27.2020 11:30
4-Bromofluorobenzene	111		99		98		70-130	%	08.27.2020 11:30

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3135786 Matrix: Soil Date Prep: 08.27.2020
Parent Sample Id: 671126-001 MS Sample Id: 671126-001 S MSD Sample Id: 671126-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.111	111	0.0960	96	70-130	14	35	mg/kg	08.27.2020 12:32	
Toluene	<0.00199	0.0996	0.104	104	0.0924	93	70-130	12	35	mg/kg	08.27.2020 12:32	
Ethylbenzene	<0.00199	0.0996	0.110	110	0.0957	96	71-129	14	35	mg/kg	08.27.2020 12:32	
m,p-Xylenes	<0.00398	0.199	0.220	111	0.195	98	70-135	12	35	mg/kg	08.27.2020 12:32	
o-Xylene	<0.00199	0.0996	0.108	108	0.0967	97	71-133	11	35	mg/kg	08.27.2020 12:32	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	98		98		70-130	%	08.27.2020 12:32
4-Bromofluorobenzene	101		102		70-130	%	08.27.2020 12:32

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

Chain of Custody

Work Order No: 671127

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)
www.xenco.com

Page 1 of 1

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littrell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 East Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849 Email:		slo@ltenv.com, dmoir@ltenv.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting:Level II ☐ Level III ☐ ST/UST ☐ RRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	DKS Transport Truck Rollover	Turn Around	
Project Number:	10432 0001	Routine	☒
P.O. Number:		Rush:	
Sampler's Name:	Spencer Lo	Due Date:	

SAMPLE RECEIPT				
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No	
Temperature (°C):	5.2 / 5.0	Thermometer ID		
Received Intact:	(Yes) No	T-NM-007		
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2	
Sample Custody Seals:	Yes (No) N/A	Total Containers:	3	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 8021)	Chloride (EPA 300.0)
SS01	S	8.26.20	1210	0.5'	1	X	X	X
SS02	S	8.26.20	1225	0.5'	1	X	X	X
SS03	S	8.26.20	1235	0.5'	1	X	X	X

ANALYSIS REQUEST

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Comments

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
	Cloe Clifton	8.26.20 17:15	2		
			4		
			6		

Revised Date 051418 Rev. 2018.1

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 08.26.2020 05.15.00 PM

Work Order #: 671127

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	5	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**	
#5 Custody Seals intact on sample bottles?	**Yes**	
#6*Custody Seals Signed and dated?	**Yes**	
#7 *Chain of Custody present?	**Yes**	
#8 Any missing/extra samples?	**No**	
#9 Chain of Custody signed when relinquished/ received?	**Yes**	
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**	
#11 Container label(s) legible and intact?	**Yes**	
#12 Samples in proper container/ bottle?	**Yes**	Samples received in bulk containers.
#13 Samples properly preserved?	**Yes**	
#14 Sample container(s) intact?	**Yes**	
#15 Sufficient sample amount for indicated test(s)?	**Yes**	
#16 All samples received within hold time?	**Yes**	
#17 Subcontract of sample(s)?	**No**	
#18 Water VOC samples have zero headspace?	**N/A**	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Cloe Clifton Date: 08.27.2020

Checklist reviewed by: Jessica Kramer Date: 08.28.2020

Jessica Kramer

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Certificate of Analysis Summary 671630

LT Environmental, Inc., Arvada, CO

Project Name: DKS Transport Truck Rollover

Project Id: 104320001
Contact: Dan Moir
Project Location:

Date Received in Lab: Wed 09.02.2020 12:25
Report Date: 09.03.2020 12:18
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	671630-001		671630-002		671630-003		671630-004		671630-005		671630-006	
	Field Id:	FS01		FS02		FS03		FS04		FS05		FS06	
	Depth:	0.5- ft		0.5- ft		1- ft		1- ft		1- ft		0.5- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	09.01.2020 13:15		09.01.2020 13:35		09.01.2020 13:55		09.01.2020 14:15		09.01.2020 14:35		09.01.2020 14:55	
BTEX by EPA 8021B	***Extracted:***	09.02.2020 14:29		09.02.2020 14:29		09.02.2020 14:29		09.02.2020 14:29		09.02.2020 14:29		09.02.2020 14:29	
	Analyzed:	09.02.2020 19:33		09.02.2020 19:53		09.02.2020 20:13		09.02.2020 20:34		09.02.2020 20:54		09.02.2020 21:15	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00200	0.00200	<0.00202	0.00202	<0.00200	0.00200	<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199
Toluene		<0.00200	0.00200	<0.00202	0.00202	<0.00200	0.00200	<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199
Ethylbenzene		<0.00200	0.00200	<0.00202	0.00202	<0.00200	0.00200	<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199
m,p-Xylenes		<0.00399	0.00399	<0.00403	0.00403	<0.00401	0.00401	<0.00399	0.00399	<0.00397	0.00397	<0.00398	0.00398
o-Xylene		<0.00200	0.00200	<0.00202	0.00202	<0.00200	0.00200	<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199
Total Xylenes		<0.00200	0.00200	<0.00202	0.00202	<0.00200	0.00200	<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199
Total BTEX		<0.00200	0.00200	<0.00202	0.00202	<0.00200	0.00200	<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199
Chloride by EPA 300	***Extracted:***	09.02.2020 15:24		09.02.2020 15:24		09.02.2020 15:24		09.02.2020 15:24		09.02.2020 15:24		09.02.2020 15:24	
	Analyzed:	09.02.2020 16:53		09.02.2020 17:09		09.02.2020 17:15		09.02.2020 17:21		09.02.2020 17:26		09.02.2020 17:32	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		225	9.96	232	9.96	345	9.92	554	9.98	356	9.94	244	9.90
TPH by SW8015 Mod	***Extracted:***	09.02.2020 14:00		09.02.2020 14:00		09.02.2020 14:00		09.02.2020 14:00		09.02.2020 14:00		09.02.2020 14:00	
	Analyzed:	09.02.2020 19:46		09.02.2020 16:45		09.02.2020 17:05		09.02.2020 17:25		09.02.2020 17:45		09.02.2020 18:05	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<50.1	50.1	<50.1	50.1	<50.0	50.0	<50.3	50.3	<50.0	50.0	<49.9	49.9
Diesel Range Organics (DRO)		547	50.1	364	50.1	202	50.0	<50.3	50.3	<50.0	50.0	<49.9	49.9
Motor Oil Range Hydrocarbons (MRO)		122	50.1	85.2	50.1	70.3	50.0	<50.3	50.3	<50.0	50.0	<49.9	49.9
Total GRO-DRO		547	50.1	364	50.1	202	50.0	<50.3	50.3	<50.0	50.0	<49.9	49.9
Total TPH		669	50.1	449	50.1	272	50.0	<50.3	50.3	<50.0	50.0	<49.9	49.9

BRL - Below Reporting Limit

Jessica Kramer

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Certificate of Analysis Summary 671630

LT Environmental, Inc., Arvada, CO

Project Name: DKS Transport Truck Rollover

Project Id: 104320001
Contact: Dan Moir
Project Location:

Date Received in Lab: Wed 09.02.2020 12:25
Report Date: 09.03.2020 12:18
Project Manager: Jessica Kramer

Analysis Requested											
	Lab Id:	671630-007		671630-008		671630-009					
	Field Id:	FS07		FS08		FS09					
	Depth:	0.5- ft		0.5- ft		1- ft					
	Matrix:	SOIL		SOIL		SOIL					
	Sampled:	09.01.2020 15:15		09.01.2020 15:35		09.01.2020 15:55					
BTEX by EPA 8021B	***Extracted:***	09.02.2020 14:29		09.02.2020 14:29		09.02.2020 14:29					
	Analyzed:	09.02.2020 22:30		09.02.2020 22:51		09.02.2020 23:11					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Benzene		<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200				
Toluene		<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200				
Ethylbenzene		<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200				
m,p-Xylenes		<0.00399	0.00399	<0.00399	0.00399	<0.00399	0.00399				
o-Xylene		<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200				
Total Xylenes		<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200				
Total BTEX		<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200				
Chloride by EPA 300	***Extracted:***	09.02.2020 15:24		09.02.2020 15:24		09.02.2020 15:24					
	Analyzed:	09.02.2020 17:37		09.02.2020 17:54		09.02.2020 18:00					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		215	9.92	212	9.98	153	10.0				
TPH by SW8015 Mod	***Extracted:***	09.02.2020 14:00		09.02.2020 14:00		09.02.2020 14:00					
	Analyzed:	09.02.2020 18:25		09.02.2020 19:06		09.02.2020 19:26					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		<50.1	50.1	<49.8	49.8	<49.9	49.9				
Diesel Range Organics (DRO)		<50.1	50.1	<49.8	49.8	139	49.9				
Motor Oil Range Hydrocarbons (MRO)		<50.1	50.1	<49.8	49.8	<49.9	49.9				
Total GRO-DRO		<50.1	50.1	<49.8	49.8	139	49.9				
Total TPH		<50.1	50.1	<49.8	49.8	139	49.9				

BRL - Below Reporting Limit

Jessica Kramer

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

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Analytical Report 671630

for

LT Environmental, Inc.

Project Manager: Dan Moir

DKS Transport Truck Rollover

104320001

09.03.2020

Collected By: Client

1089 N Canal Street
Carlsbad, NM 88220

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)

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09.03.2020

Project Manager: **Dan Moir**
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, CO 80003

Reference: Eurofins Xenco, LLC Report No(s): **671630**
DKS Transport Truck Rollover
Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 671630. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 671630 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer

Jessica Kramer
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

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Sample Cross Reference 671630

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS01	S	09.01.2020 13:15	0.5 ft	671630-001
FS02	S	09.01.2020 13:35	0.5 ft	671630-002
FS03	S	09.01.2020 13:55	1 ft	671630-003
FS04	S	09.01.2020 14:15	1 ft	671630-004
FS05	S	09.01.2020 14:35	1 ft	671630-005
FS06	S	09.01.2020 14:55	0.5 ft	671630-006
FS07	S	09.01.2020 15:15	0.5 ft	671630-007
FS08	S	09.01.2020 15:35	0.5 ft	671630-008
FS09	S	09.01.2020 15:55	1 ft	671630-009

CASE NARRATIVE

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Client Name: LT Environmental, Inc.

Project Name: DKS Transport Truck Rollover

Project ID:	*104320001*	Report Date:	*09.03.2020*
Work Order Number(s):	*671630*	Date Received:	*09.02.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

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Certificate of Analytical Results 671630

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS01**	Matrix:	Soil	Date Received:	09.02.2020 12:25
Lab Sample Id:	671630-001	Date Collected:	09.01.2020 13:15	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.02.2020 15:24	Basis:	Wet Weight
Seq Number:	3136283				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**225**	9.96	mg/kg	09.02.2020 16:53		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.02.2020 14:00	Basis:	Wet Weight
Seq Number:	3136233				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	09.02.2020 19:46	U	1
Diesel Range Organics (DRO)	C10C28DRO	**547**	50.1	mg/kg	09.02.2020 19:46		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**122**	50.1	mg/kg	09.02.2020 19:46		1
Total GRO-DRO	PHC628	**547**	50.1	mg/kg	09.02.2020 19:46		1
Total TPH	PHC635	**669**	50.1	mg/kg	09.02.2020 19:46		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	09.02.2020 19:46	
o-Terphenyl	84-15-1	109	%	70-135	09.02.2020 19:46	

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LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS01**	Matrix:	Soil	Date Received:	09.02.2020 12:25
Lab Sample Id:	671630-001	Date Collected:	09.01.2020 13:15	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.02.2020 14:29	Basis:	Wet Weight
Seq Number:	3136275				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.02.2020 19:33	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.02.2020 19:33	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.02.2020 19:33	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	09.02.2020 19:33	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.02.2020 19:33	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.02.2020 19:33	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.02.2020 19:33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	93	%	70-130	09.02.2020 19:33	
1,4-Difluorobenzene	540-36-3	105	%	70-130	09.02.2020 19:33	

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LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS02**	Matrix:	Soil	Date Received:	09.02.2020 12:25
Lab Sample Id:	671630-002	Date Collected:	09.01.2020 13:35	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.02.2020 15:24	Basis:	Wet Weight
Seq Number:	3136283				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**232**	9.96	mg/kg	09.02.2020 17:09		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.02.2020 14:00	Basis:	Wet Weight
Seq Number:	3136233				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	09.02.2020 16:45	U	1
Diesel Range Organics (DRO)	C10C28DRO	**364**	50.1	mg/kg	09.02.2020 16:45		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**85.2**	50.1	mg/kg	09.02.2020 16:45		1
Total GRO-DRO	PHC628	**364**	50.1	mg/kg	09.02.2020 16:45		1
Total TPH	PHC635	**449**	50.1	mg/kg	09.02.2020 16:45		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	09.02.2020 16:45	
o-Terphenyl	84-15-1	108	%	70-135	09.02.2020 16:45	

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Sample Id:	**FS02**	Matrix:	Soil	Date Received:	09.02.2020 12:25
Lab Sample Id:	671630-002	Date Collected:	09.01.2020 13:35	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.02.2020 14:29	Basis:	Wet Weight
Seq Number:	3136275				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	09.02.2020 19:53	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	09.02.2020 19:53	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	09.02.2020 19:53	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	09.02.2020 19:53	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	09.02.2020 19:53	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	09.02.2020 19:53	U	1
Total BTEX		<0.00202	0.00202	mg/kg	09.02.2020 19:53	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	104	%	70-130	09.02.2020 19:53	
4-Bromofluorobenzene	460-00-4	92	%	70-130	09.02.2020 19:53	

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DKS Transport Truck Rollover

Sample Id:	**FS03**	Matrix:	Soil	Date Received:	09.02.2020 12:25
Lab Sample Id:	671630-003	Date Collected:	09.01.2020 13:55	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.02.2020 15:24	Basis:	Wet Weight
Seq Number:	3136283				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**345**	9.92	mg/kg	09.02.2020 17:15		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.02.2020 14:00	Basis:	Wet Weight
Seq Number:	3136233				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	09.02.2020 17:05	U	1
Diesel Range Organics (DRO)	C10C28DRO	**202**	50.0	mg/kg	09.02.2020 17:05		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**70.3**	50.0	mg/kg	09.02.2020 17:05		1
Total GRO-DRO	PHC628	**202**	50.0	mg/kg	09.02.2020 17:05		1
Total TPH	PHC635	**272**	50.0	mg/kg	09.02.2020 17:05		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	09.02.2020 17:05	
o-Terphenyl	84-15-1	106	%	70-135	09.02.2020 17:05	

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Sample Id:	**FS03**	Matrix:	Soil	Date Received:	09.02.2020 12:25
Lab Sample Id:	671630-003	Date Collected:	09.01.2020 13:55	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.02.2020 14:29	Basis:	Wet Weight
Seq Number:	3136275				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.02.2020 20:13	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.02.2020 20:13	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.02.2020 20:13	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	09.02.2020 20:13	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.02.2020 20:13	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.02.2020 20:13	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.02.2020 20:13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	107	%	70-130	09.02.2020 20:13	
4-Bromofluorobenzene	460-00-4	95	%	70-130	09.02.2020 20:13	

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Sample Id:	**FS04**	Matrix:	Soil	Date Received:	09.02.2020 12:25
Lab Sample Id:	671630-004	Date Collected:	09.01.2020 14:15	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.02.2020 15:24	Basis:	Wet Weight
Seq Number:	3136283				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**554**	9.98	mg/kg	09.02.2020 17:21		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.02.2020 14:00	Basis:	Wet Weight
Seq Number:	3136233				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	09.02.2020 17:25	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	09.02.2020 17:25	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	09.02.2020 17:25	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	09.02.2020 17:25	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	09.02.2020 17:25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	09.02.2020 17:25	
o-Terphenyl	84-15-1	107	%	70-135	09.02.2020 17:25	

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Sample Id:	**FS04**	Matrix:	Soil	Date Received:	09.02.2020 12:25
Lab Sample Id:	671630-004	Date Collected:	09.01.2020 14:15	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.02.2020 14:29	Basis:	Wet Weight
Seq Number:	3136275				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.02.2020 20:34	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.02.2020 20:34	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.02.2020 20:34	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	09.02.2020 20:34	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.02.2020 20:34	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.02.2020 20:34	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.02.2020 20:34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	96	%	70-130	09.02.2020 20:34	
1,4-Difluorobenzene	540-36-3	101	%	70-130	09.02.2020 20:34	

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Sample Id:	**FS05**	Matrix:	Soil	Date Received:	09.02.2020 12:25
Lab Sample Id:	671630-005	Date Collected:	09.01.2020 14:35	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.02.2020 15:24	Basis:	Wet Weight
Seq Number:	3136283				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**356**	9.94	mg/kg	09.02.2020 17:26		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.02.2020 14:00	Basis:	Wet Weight
Seq Number:	3136233				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	09.02.2020 17:45	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	09.02.2020 17:45	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	09.02.2020 17:45	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	09.02.2020 17:45	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	09.02.2020 17:45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	09.02.2020 17:45	
o-Terphenyl	84-15-1	105	%	70-135	09.02.2020 17:45	

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Sample Id:	**FS05**	Matrix:	Soil	Date Received:	09.02.2020 12:25
Lab Sample Id:	671630-005	Date Collected:	09.01.2020 14:35	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.02.2020 14:29	Basis:	Wet Weight
Seq Number:	3136275				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	09.02.2020 20:54	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	09.02.2020 20:54	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	09.02.2020 20:54	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	09.02.2020 20:54	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	09.02.2020 20:54	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	09.02.2020 20:54	U	1
Total BTEX		<0.00198	0.00198	mg/kg	09.02.2020 20:54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	104	%	70-130	09.02.2020 20:54	
4-Bromofluorobenzene	460-00-4	97	%	70-130	09.02.2020 20:54	

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Sample Id:	**FS06**	Matrix:	Soil	Date Received:	09.02.2020 12:25
Lab Sample Id:	671630-006	Date Collected:	09.01.2020 14:55	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.02.2020 15:24	Basis:	Wet Weight
Seq Number:	3136283				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**244**	9.90	mg/kg	09.02.2020 17:32		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.02.2020 14:00	Basis:	Wet Weight
Seq Number:	3136233				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	09.02.2020 18:05	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	09.02.2020 18:05	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	09.02.2020 18:05	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	09.02.2020 18:05	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	09.02.2020 18:05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	09.02.2020 18:05	
o-Terphenyl	84-15-1	100	%	70-135	09.02.2020 18:05	

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Sample Id:	**FS06**	Matrix:	Soil	Date Received:	09.02.2020 12:25
Lab Sample Id:	671630-006	Date Collected:	09.01.2020 14:55	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.02.2020 14:29	Basis:	Wet Weight
Seq Number:	3136275				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	09.02.2020 21:15	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	09.02.2020 21:15	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	09.02.2020 21:15	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	09.02.2020 21:15	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	09.02.2020 21:15	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	09.02.2020 21:15	U	1
Total BTEX		<0.00199	0.00199	mg/kg	09.02.2020 21:15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	78	%	70-130	09.02.2020 21:15	
1,4-Difluorobenzene	540-36-3	96	%	70-130	09.02.2020 21:15	

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Sample Id:	**FS07**	Matrix:	Soil	Date Received:	09.02.2020 12:25
Lab Sample Id:	671630-007	Date Collected:	09.01.2020 15:15	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.02.2020 15:24	Basis:	Wet Weight
Seq Number:	3136283				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**215**	9.92	mg/kg	09.02.2020 17:37		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.02.2020 14:00	Basis:	Wet Weight
Seq Number:	3136233				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	09.02.2020 18:25	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	09.02.2020 18:25	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	09.02.2020 18:25	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	09.02.2020 18:25	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	09.02.2020 18:25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	09.02.2020 18:25	
o-Terphenyl	84-15-1	105	%	70-135	09.02.2020 18:25	

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Sample Id:	**FS07**	Matrix:	Soil	Date Received:	09.02.2020 12:25
Lab Sample Id:	671630-007	Date Collected:	09.01.2020 15:15	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.02.2020 14:29	Basis:	Wet Weight
Seq Number:	3136275				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.02.2020 22:30	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.02.2020 22:30	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.02.2020 22:30	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	09.02.2020 22:30	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.02.2020 22:30	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.02.2020 22:30	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.02.2020 22:30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	103	%	70-130	09.02.2020 22:30	
4-Bromofluorobenzene	460-00-4	101	%	70-130	09.02.2020 22:30	

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DKS Transport Truck Rollover

Sample Id:	**FS08**	Matrix:	Soil	Date Received:	09.02.2020 12:25
Lab Sample Id:	671630-008	Date Collected:	09.01.2020 15:35	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.02.2020 15:24	Basis:	Wet Weight
Seq Number:	3136283				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**212**	9.98	mg/kg	09.02.2020 17:54		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.02.2020 14:00	Basis:	Wet Weight
Seq Number:	3136233				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	09.02.2020 19:06	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	09.02.2020 19:06	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	09.02.2020 19:06	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	09.02.2020 19:06	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	09.02.2020 19:06	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	09.02.2020 19:06	
o-Terphenyl	84-15-1	102	%	70-135	09.02.2020 19:06	

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Certificate of Analytical Results 671630

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS08**	Matrix:	Soil	Date Received:	09.02.2020 12:25
Lab Sample Id:	671630-008	Date Collected:	09.01.2020 15:35	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.02.2020 14:29	Basis:	Wet Weight
Seq Number:	3136275				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.02.2020 22:51	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.02.2020 22:51	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.02.2020 22:51	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	09.02.2020 22:51	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.02.2020 22:51	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.02.2020 22:51	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.02.2020 22:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	97	%	70-130	09.02.2020 22:51	
1,4-Difluorobenzene	540-36-3	103	%	70-130	09.02.2020 22:51	

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Certificate of Analytical Results 671630

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS09**	Matrix:	Soil	Date Received:	09.02.2020 12:25
Lab Sample Id:	671630-009	Date Collected:	09.01.2020 15:55	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.02.2020 15:24	Basis:	Wet Weight
Seq Number:	3136283				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**153**	10.0	mg/kg	09.02.2020 18:00		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.02.2020 14:00	Basis:	Wet Weight
Seq Number:	3136233				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	09.02.2020 19:26	U	1
Diesel Range Organics (DRO)	C10C28DRO	**139**	49.9	mg/kg	09.02.2020 19:26		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	09.02.2020 19:26	U	1
Total GRO-DRO	PHC628	**139**	49.9	mg/kg	09.02.2020 19:26		1
Total TPH	PHC635	**139**	49.9	mg/kg	09.02.2020 19:26		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	09.02.2020 19:26	
o-Terphenyl	84-15-1	98	%	70-135	09.02.2020 19:26	

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Certificate of Analytical Results 671630

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS09**	Matrix:	Soil	Date Received:	09.02.2020 12:25
Lab Sample Id:	671630-009	Date Collected:	09.01.2020 15:55	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.02.2020 14:29	Basis:	Wet Weight
Seq Number:	3136275				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.02.2020 23:11	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.02.2020 23:11	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.02.2020 23:11	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	09.02.2020 23:11	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.02.2020 23:11	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.02.2020 23:11	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.02.2020 23:11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	108	%	70-130	09.02.2020 23:11	
4-Bromofluorobenzene	460-00-4	96	%	70-130	09.02.2020 23:11	

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Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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QC Summary 671630

LT Environmental, Inc.

DKS Transport Truck Rollover

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3136283 Matrix: Solid Date Prep: 09.02.2020
MB Sample Id: 7710696-1-BLK LCS Sample Id: 7710696-1-BKS LCSD Sample Id: 7710696-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	266	106	268	107	90-110	1	20	mg/kg	09.02.2020 16:08	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3136283 Matrix: Soil Date Prep: 09.02.2020
Parent Sample Id: 671625-001 MS Sample Id: 671625-001 S MSD Sample Id: 671625-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	325	200	533	104	533	104	90-110	0	20	mg/kg	09.02.2020 16:25	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3136283 Matrix: Soil Date Prep: 09.02.2020
Parent Sample Id: 671630-007 MS Sample Id: 671630-007 S MSD Sample Id: 671630-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	215	199	420	103	420	103	90-110	0	20	mg/kg	09.02.2020 17:43	

Analytical Method: **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3136233 Matrix: Solid Date Prep: 09.02.2020
MB Sample Id: 7710673-1-BLK LCS Sample Id: 7710673-1-BKS LCSD Sample Id: 7710673-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	832	83	823	82	70-135	1	35	mg/kg	09.02.2020 11:50	
Diesel Range Organics (DRO)	<50.0	1000	940	94	920	92	70-135	2	35	mg/kg	09.02.2020 11:50	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	93		111		108		70-135	%	09.02.2020 11:50
o-Terphenyl	100		110		107		70-135	%	09.02.2020 11:50

Analytical Method: **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3136233 Matrix: Solid Date Prep: 09.02.2020
MB Sample Id: 7710673-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	09.02.2020 11:30	

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

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QC Summary 671630

LT Environmental, Inc.

DKS Transport Truck Rollover

Analytical Method: **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3136233 Matrix: Soil Date Prep: 09.02.2020
Parent Sample Id: 671640-001 MS Sample Id: 671640-001 S MSD Sample Id: 671640-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<49.9	998	835	84	813	81	70-135	3	35	mg/kg	09.02.2020 15:03	
Diesel Range Organics (DRO)	<49.9	998	939	94	922	92	70-135	2	35	mg/kg	09.02.2020 15:03	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	115		111		70-135	%	09.02.2020 15:03
o-Terphenyl	113		110		70-135	%	09.02.2020 15:03

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3136275 Matrix: Solid Date Prep: 09.02.2020
MB Sample Id: 7710698-1-BLK LCS Sample Id: 7710698-1-BKS LCSD Sample Id: 7710698-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0961	96	0.0968	97	70-130	1	35	mg/kg	09.02.2020 16:14	
Toluene	<0.00200	0.100	0.0905	91	0.0925	93	70-130	2	35	mg/kg	09.02.2020 16:14	
Ethylbenzene	<0.00200	0.100	0.0942	94	0.0961	96	71-129	2	35	mg/kg	09.02.2020 16:14	
m,p-Xylenes	<0.00400	0.200	0.190	95	0.194	97	70-135	2	35	mg/kg	09.02.2020 16:14	
o-Xylene	<0.00200	0.100	0.0954	95	0.0975	98	71-133	2	35	mg/kg	09.02.2020 16:14	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		100		101		70-130	%	09.02.2020 16:14
4-Bromofluorobenzene	98		92		92		70-130	%	09.02.2020 16:14

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3136275 Matrix: Soil Date Prep: 09.02.2020
Parent Sample Id: 671625-001 MS Sample Id: 671625-001 S MSD Sample Id: 671625-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.0927	93	0.105	105	70-130	12	35	mg/kg	09.03.2020 01:54	
Toluene	<0.00199	0.0994	0.0863	87	0.0963	96	70-130	11	35	mg/kg	09.03.2020 01:54	
Ethylbenzene	<0.00199	0.0994	0.0903	91	0.0943	94	71-129	4	35	mg/kg	09.03.2020 01:54	
m,p-Xylenes	<0.00398	0.199	0.178	89	0.185	93	70-135	4	35	mg/kg	09.03.2020 01:54	
o-Xylene	<0.00199	0.0994	0.0912	92	0.0897	90	71-133	2	35	mg/kg	09.03.2020 01:54	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	97		101		70-130	%	09.03.2020 01:54
4-Bromofluorobenzene	91		88		70-130	%	09.03.2020 01:54

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

Chain of Custody

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)
www.xenco.com

Work Order No: 671630

Page 1 of 1

Project Manager:	Dan Moir	Bill to: (if different)	
Company Name:	LT Environmental, Inc., Permian office	Company Name:	
Address:	3300 North A Street	Address:	
City, State ZIP:	Midland, TX 79705	City, State ZIP:	
Phone:	(432) 236-3849	Email:	slo@ltenv.com, dmoir@ltenv.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ ST/UST ☐ RRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	DK'S Transport Truck Rollover	Turn Around	
Project Number:	10432 0001	Routine	☑
P.O. Number:		Rush:	
Sampler's Name:	Spencer Lo	Due Date:	

SAMPLE RECEIPT			
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Temperature (°C):	2.4/2.2	Thermometer ID	TNM007
Received Intact:	(Yes) No		
Cooler Custody Seals:	Yes (No) N/A	Correction Factor:	-0.2
Sample Custody Seals:	Yes (No) N/A	Total Containers:	9

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)
FS01	S	9.1.20	1315	0.5'	1	X	X	X
FS02			1335	0.5'				
FS03			1355	1.0'				
FS04			1415	1.0'				
FS05			1435	1.0'				
FS06			1455	0.5'				
FS07			1515	0.5'				
FS08			1535	0.5'				
FS09	↓	↓	1555	1'	↓	↓	↓	↓

ANALYSIS REQUEST

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Comments

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	2	9-2-20/11:00am	2		9/2/20 12:25
3	4		4		
5	6		6		

Revised Date 051418 Rev. 2018.1

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 09.02.2020 12.25.00 PM

Work Order #: 671630

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	2.2	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**	
#5 Custody Seals intact on sample bottles?	**Yes**	
#6*Custody Seals Signed and dated?	**Yes**	
#7 *Chain of Custody present?	**Yes**	
#8 Any missing/extra samples?	**No**	
#9 Chain of Custody signed when relinquished/ received?	**Yes**	
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**	
#11 Container label(s) legible and intact?	**Yes**	
#12 Samples in proper container/ bottle?	**Yes**	Samples received in bulk containers.
#13 Samples properly preserved?	**Yes**	
#14 Sample container(s) intact?	**Yes**	
#15 Sufficient sample amount for indicated test(s)?	**Yes**	
#16 All samples received within hold time?	**Yes**	
#17 Subcontract of sample(s)?	**No**	
#18 Water VOC samples have zero headspace?	**N/A**	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Cloe Clifton Date: 09.02.2020

Checklist reviewed by: Jessica Kramer Date: 09.03.2020

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Certificate of Analysis Summary 672397

LT Environmental, Inc., Arvada, CO

Project Name: DKS Transport Truck Rollover

Project Id: 104320001
Contact: Dan Moir
Project Location:

Date Received in Lab: Fri 09.11.2020 16:51
Report Date: 09.16.2020 10:42
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	672397-001		672397-002		672397-003		672397-004		672397-005		672397-006	
	Field Id:	FS01		FS02		FS03		FS04		FS05		FS06	
	Depth:	1.5- ft		1.5- ft		1.5- ft		1.5- ft		1.5- ft		0.5- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	09.11.2020 13:20		09.11.2020 13:30		09.11.2020 13:40		09.11.2020 13:50		09.11.2020 14:00		09.11.2020 14:10	
BTEX by EPA 8021B	***Extracted:***	09.14.2020 11:00		09.14.2020 11:00		09.14.2020 11:00		09.14.2020 11:00		09.14.2020 11:00		09.14.2020 11:00	
	Analyzed:	09.14.2020 17:49		09.14.2020 19:05		09.14.2020 19:25		09.14.2020 19:46		09.14.2020 20:06		09.14.2020 20:26	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00200	0.00200	<0.00202	0.00202	<0.00204	0.00204	<0.00202	0.00202	<0.00200	0.00200	<0.00200	0.00200
Toluene		<0.00200	0.00200	<0.00202	0.00202	<0.00204	0.00204	<0.00202	0.00202	<0.00200	0.00200	<0.00200	0.00200
Ethylbenzene		<0.00200	0.00200	<0.00202	0.00202	<0.00204	0.00204	<0.00202	0.00202	<0.00200	0.00200	<0.00200	0.00200
m,p-Xylenes		<0.00401	0.00401	<0.00404	0.00404	<0.00408	0.00408	<0.00403	0.00403	<0.00401	0.00401	<0.00400	0.00400
o-Xylene		<0.00200	0.00200	<0.00202	0.00202	<0.00204	0.00204	<0.00202	0.00202	<0.00200	0.00200	<0.00200	0.00200
Total Xylenes		<0.00200	0.00200	<0.00202	0.00202	<0.00204	0.00204	<0.00202	0.00202	<0.00200	0.00200	<0.00200	0.00200
Total BTEX		<0.00200	0.00200	<0.00202	0.00202	<0.00204	0.00204	<0.00202	0.00202	<0.00200	0.00200	<0.00200	0.00200
Chloride by EPA 300	***Extracted:***	09.14.2020 12:05		09.14.2020 12:05		09.14.2020 12:05		09.14.2020 12:05		09.14.2020 12:05		09.14.2020 12:05	
	Analyzed:	09.14.2020 14:27		09.14.2020 14:43		09.14.2020 14:49		09.14.2020 15:05		09.14.2020 15:11		09.14.2020 15:16	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		270	9.92	325	10.1	840	10.1	440	9.90	573	10.1	110	10.0
TPH by SW8015 Mod	***Extracted:***	09.14.2020 10:30		09.14.2020 10:30		09.14.2020 10:30		09.14.2020 10:30		09.14.2020 10:30		09.14.2020 10:30	
	Analyzed:	09.14.2020 12:54		09.14.2020 13:14		09.14.2020 13:34		09.14.2020 13:54		09.14.2020 14:15		09.14.2020 14:35	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<50.2	50.2	<49.8	49.8	<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.2	50.2
Diesel Range Organics (DRO)		<50.2	50.2	<49.8	49.8	<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.2	50.2
Motor Oil Range Hydrocarbons (MRO)		<50.2	50.2	<49.8	49.8	<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.2	50.2
Total GRO-DRO		<50.2	50.2	<49.8	49.8	<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.2	50.2
Total TPH		<50.2	50.2	<49.8	49.8	<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.2	50.2

BRL - Below Reporting Limit

Jessica Kramer

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

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Certificate of Analysis Summary 672397

LT Environmental, Inc., Arvada, CO

Project Name: DKS Transport Truck Rollover

Project Id: 104320001
Contact: Dan Moir
Project Location:

Date Received in Lab: Fri 09.11.2020 16:51
Report Date: 09.16.2020 10:42
Project Manager: Jessica Kramer

Analysis Requested											
	Lab Id:	672397-007		672397-008		672397-009					
	Field Id:	FS07		FS08		FS09					
	Depth:	0.5- ft		0.5- ft		0.5- ft					
	Matrix:	SOIL		SOIL		SOIL					
	Sampled:	09.11.2020 14:20		09.11.2020 14:30		09.11.2020 15:00					
BTEX by EPA 8021B	***Extracted:***	09.14.2020 11:00		09.14.2020 11:00		09.14.2020 11:00					
	Analyzed:	09.14.2020 20:47		09.14.2020 21:07		09.14.2020 21:28					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Benzene		<0.00200	0.00200	<0.00198	0.00198	<0.00200	0.00200				
Toluene		<0.00200	0.00200	<0.00198	0.00198	<0.00200	0.00200				
Ethylbenzene		<0.00200	0.00200	<0.00198	0.00198	<0.00200	0.00200				
m,p-Xylenes		<0.00399	0.00399	<0.00396	0.00396	<0.00401	0.00401				
o-Xylene		<0.00200	0.00200	<0.00198	0.00198	<0.00200	0.00200				
Total Xylenes		<0.00200	0.00200	<0.00198	0.00198	<0.00200	0.00200				
Total BTEX		<0.00200	0.00200	<0.00198	0.00198	<0.00200	0.00200				
Chloride by EPA 300	***Extracted:***	09.14.2020 12:05		09.14.2020 12:05		09.14.2020 12:05					
	Analyzed:	09.14.2020 15:22		09.14.2020 15:27		09.14.2020 15:33					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		75.7	10.0	80.5	10.0	143	10.1				
TPH by SW8015 Mod	***Extracted:***	09.14.2020 10:30		09.14.2020 10:30		09.14.2020 10:30					
	Analyzed:	09.14.2020 15:15		09.14.2020 15:35		09.14.2020 15:55					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		<50.2	50.2	<49.8	49.8	<50.1	50.1				
Diesel Range Organics (DRO)		<50.2	50.2	<49.8	49.8	<50.1	50.1				
Motor Oil Range Hydrocarbons (MRO)		<50.2	50.2	<49.8	49.8	<50.1	50.1				
Total GRO-DRO		<50.2	50.2	<49.8	49.8	<50.1	50.1				
Total TPH		<50.2	50.2	<49.8	49.8	<50.1	50.1				

BRL - Below Reporting Limit

Jessica Kramer

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Analytical Report 672397

for

LT Environmental, Inc.

Project Manager: Dan Moir

DKS Transport Truck Rollover

104320001

09.16.2020

Collected By: Client

1089 N Canal Street
Carlsbad, NM 88220

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)

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09.16.2020

Project Manager: **Dan Moir**
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, CO 80003

Reference: Eurofins Xenco, LLC Report No(s): **672397**
DKS Transport Truck Rollover
Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 672397. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 672397 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer

Jessica Kramer
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

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Sample Cross Reference 672397

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS01	S	09.11.2020 13:20	1.5 ft	672397-001
FS02	S	09.11.2020 13:30	1.5 ft	672397-002
FS03	S	09.11.2020 13:40	1.5 ft	672397-003
FS04	S	09.11.2020 13:50	1.5 ft	672397-004
FS05	S	09.11.2020 14:00	1.5 ft	672397-005
FS06	S	09.11.2020 14:10	0.5 ft	672397-006
FS07	S	09.11.2020 14:20	0.5 ft	672397-007
FS08	S	09.11.2020 14:30	0.5 ft	672397-008
FS09	S	09.11.2020 15:00	0.5 ft	672397-009

CASE NARRATIVE

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Client Name: LT Environmental, Inc.

Project Name: DKS Transport Truck Rollover

Project ID: *104320001*
Work Order Number(s): *672397*

Report Date: *09.16.2020*
Date Received: *09.11.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

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Certificate of Analytical Results 672397

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS01**	Matrix:	Soil	Date Received:	09.11.2020 16:51
Lab Sample Id:	672397-001	Date Collected:	09.11.2020 13:20	Sample Depth:	1.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.14.2020 12:05	Basis:	Wet Weight
Seq Number:	3137104				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**270**	9.92	mg/kg	09.14.2020 14:27		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.14.2020 10:30	Basis:	Wet Weight
Seq Number:	3137103				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	09.14.2020 12:54	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	09.14.2020 12:54	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	09.14.2020 12:54	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	09.14.2020 12:54	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	09.14.2020 12:54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	09.14.2020 12:54	
o-Terphenyl	84-15-1	110	%	70-135	09.14.2020 12:54	

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Certificate of Analytical Results 672397

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS01**	Matrix:	Soil	Date Received:	09.11.2020 16:51
Lab Sample Id:	672397-001	Date Collected:	09.11.2020 13:20	Sample Depth:	1.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MRB	Date Prep:	09.14.2020 11:00	Basis:	Wet Weight
Seq Number:	3137106				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.14.2020 17:49	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.14.2020 17:49	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.14.2020 17:49	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	09.14.2020 17:49	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.14.2020 17:49	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.14.2020 17:49	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.14.2020 17:49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	90	%	70-130	09.14.2020 17:49	
1,4-Difluorobenzene	540-36-3	96	%	70-130	09.14.2020 17:49	

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Certificate of Analytical Results 672397

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS02**	Matrix:	Soil	Date Received:	09.11.2020 16:51
Lab Sample Id:	672397-002	Date Collected:	09.11.2020 13:30	Sample Depth:	1.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.14.2020 12:05	Basis:	Wet Weight
Seq Number:	3137104				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**325**	10.1	mg/kg	09.14.2020 14:43		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.14.2020 10:30	Basis:	Wet Weight
Seq Number:	3137103				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	09.14.2020 13:14	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	09.14.2020 13:14	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	09.14.2020 13:14	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	09.14.2020 13:14	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	09.14.2020 13:14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	110	%	70-135	09.14.2020 13:14	
o-Terphenyl	84-15-1	117	%	70-135	09.14.2020 13:14	

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Certificate of Analytical Results 672397

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS02**	Matrix:	Soil	Date Received:	09.11.2020 16:51
Lab Sample Id:	672397-002	Date Collected:	09.11.2020 13:30	Sample Depth:	1.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MRB	Date Prep:	09.14.2020 11:00	Basis:	Wet Weight
Seq Number:	3137106				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	09.14.2020 19:05	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	09.14.2020 19:05	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	09.14.2020 19:05	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	09.14.2020 19:05	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	09.14.2020 19:05	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	09.14.2020 19:05	U	1
Total BTEX		<0.00202	0.00202	mg/kg	09.14.2020 19:05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	98	%	70-130	09.14.2020 19:05	
1,4-Difluorobenzene	540-36-3	102	%	70-130	09.14.2020 19:05	

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Certificate of Analytical Results 672397

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id: **FS03** Matrix: Soil Date Received:09.11.2020 16:51
Lab Sample Id: 672397-003 Date Collected: 09.11.2020 13:40 Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MAB % Moisture:
Analyst: MAB Date Prep: 09.14.2020 12:05 Basis: Wet Weight
Seq Number: 3137104

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**840**	10.1	mg/kg	09.14.2020 14:49		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
Tech: DTH % Moisture:
Analyst: DTH Date Prep: 09.14.2020 10:30 Basis: Wet Weight
Seq Number: 3137103

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	09.14.2020 13:34	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	09.14.2020 13:34	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	09.14.2020 13:34	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	09.14.2020 13:34	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	09.14.2020 13:34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-135	09.14.2020 13:34	
o-Terphenyl	84-15-1	111	%	70-135	09.14.2020 13:34	

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Certificate of Analytical Results 672397

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS03**	Matrix:	Soil	Date Received:	09.11.2020 16:51
Lab Sample Id:	672397-003	Date Collected:	09.11.2020 13:40	Sample Depth:	1.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MRB	Date Prep:	09.14.2020 11:00	Basis:	Wet Weight
Seq Number:	3137106				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00204	0.00204	mg/kg	09.14.2020 19:25	U	1
Toluene	108-88-3	<0.00204	0.00204	mg/kg	09.14.2020 19:25	U	1
Ethylbenzene	100-41-4	<0.00204	0.00204	mg/kg	09.14.2020 19:25	U	1
m,p-Xylenes	179601-23-1	<0.00408	0.00408	mg/kg	09.14.2020 19:25	U	1
o-Xylene	95-47-6	<0.00204	0.00204	mg/kg	09.14.2020 19:25	U	1
Total Xylenes	1330-20-7	<0.00204	0.00204	mg/kg	09.14.2020 19:25	U	1
Total BTEX		<0.00204	0.00204	mg/kg	09.14.2020 19:25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	102	%	70-130	09.14.2020 19:25	
4-Bromofluorobenzene	460-00-4	98	%	70-130	09.14.2020 19:25	

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Certificate of Analytical Results 672397

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS04**	Matrix:	Soil	Date Received:	09.11.2020 16:51
Lab Sample Id:	672397-004	Date Collected:	09.11.2020 13:50	Sample Depth:	1.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.14.2020 12:05	Basis:	Wet Weight
Seq Number:	3137104				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**440**	9.90	mg/kg	09.14.2020 15:05		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.14.2020 10:30	Basis:	Wet Weight
Seq Number:	3137103				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	09.14.2020 13:54	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	09.14.2020 13:54	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	09.14.2020 13:54	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	09.14.2020 13:54	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	09.14.2020 13:54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	09.14.2020 13:54	
o-Terphenyl	84-15-1	109	%	70-135	09.14.2020 13:54	

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Certificate of Analytical Results 672397

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS04**	Matrix:	Soil	Date Received:	09.11.2020 16:51
Lab Sample Id:	672397-004	Date Collected:	09.11.2020 13:50	Sample Depth:	1.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MRB	Date Prep:	09.14.2020 11:00	Basis:	Wet Weight
Seq Number:	3137106				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	09.14.2020 19:46	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	09.14.2020 19:46	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	09.14.2020 19:46	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	09.14.2020 19:46	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	09.14.2020 19:46	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	09.14.2020 19:46	U	1
Total BTEX		<0.00202	0.00202	mg/kg	09.14.2020 19:46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	105	%	70-130	09.14.2020 19:46	
4-Bromofluorobenzene	460-00-4	99	%	70-130	09.14.2020 19:46	

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Certificate of Analytical Results 672397

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id: **FS05** Matrix: Soil Date Received:09.11.2020 16:51
Lab Sample Id: 672397-005 Date Collected: 09.11.2020 14:00 Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MAB % Moisture:
Analyst: MAB Date Prep: 09.14.2020 12:05 Basis: Wet Weight
Seq Number: 3137104

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**573**	10.1	mg/kg	09.14.2020 15:11		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
Tech: DTH % Moisture:
Analyst: DTH Date Prep: 09.14.2020 10:30 Basis: Wet Weight
Seq Number: 3137103

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	09.14.2020 14:15	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	09.14.2020 14:15	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	09.14.2020 14:15	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	09.14.2020 14:15	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	09.14.2020 14:15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	09.14.2020 14:15	
o-Terphenyl	84-15-1	115	%	70-135	09.14.2020 14:15	

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LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS05**	Matrix:	Soil	Date Received:	09.11.2020 16:51
Lab Sample Id:	672397-005	Date Collected:	09.11.2020 14:00	Sample Depth:	1.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MRB	Date Prep:	09.14.2020 11:00	Basis:	Wet Weight
Seq Number:	3137106				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.14.2020 20:06	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.14.2020 20:06	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.14.2020 20:06	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	09.14.2020 20:06	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.14.2020 20:06	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.14.2020 20:06	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.14.2020 20:06	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	99	%	70-130	09.14.2020 20:06	
1,4-Difluorobenzene	540-36-3	108	%	70-130	09.14.2020 20:06	

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DKS Transport Truck Rollover

Sample Id:	**FS06**	Matrix:	Soil	Date Received:	09.11.2020 16:51
Lab Sample Id:	672397-006	Date Collected:	09.11.2020 14:10	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.14.2020 12:05	Basis:	Wet Weight
Seq Number:	3137104				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**110**	10.0	mg/kg	09.14.2020 15:16		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.14.2020 10:30	Basis:	Wet Weight
Seq Number:	3137103				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	09.14.2020 14:35	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	09.14.2020 14:35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	09.14.2020 14:35	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	09.14.2020 14:35	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	09.14.2020 14:35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	09.14.2020 14:35	
o-Terphenyl	84-15-1	109	%	70-135	09.14.2020 14:35	

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LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS06**	Matrix:	Soil	Date Received:	09.11.2020 16:51
Lab Sample Id:	672397-006	Date Collected:	09.11.2020 14:10	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MRB	Date Prep:	09.14.2020 11:00	Basis:	Wet Weight
Seq Number:	3137106				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.14.2020 20:26	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.14.2020 20:26	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.14.2020 20:26	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	09.14.2020 20:26	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.14.2020 20:26	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.14.2020 20:26	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.14.2020 20:26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	99	%	70-130	09.14.2020 20:26	
1,4-Difluorobenzene	540-36-3	107	%	70-130	09.14.2020 20:26	

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LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS07**	Matrix:	Soil	Date Received:	09.11.2020 16:51
Lab Sample Id:	672397-007	Date Collected:	09.11.2020 14:20	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.14.2020 12:05	Basis:	Wet Weight
Seq Number:	3137104				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**75.7**	10.0	mg/kg	09.14.2020 15:22		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.14.2020 10:30	Basis:	Wet Weight
Seq Number:	3137103				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	09.14.2020 15:15	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	09.14.2020 15:15	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	09.14.2020 15:15	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	09.14.2020 15:15	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	09.14.2020 15:15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	09.14.2020 15:15	
o-Terphenyl	84-15-1	108	%	70-135	09.14.2020 15:15	

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DKS Transport Truck Rollover

Sample Id:	**FS07**	Matrix:	Soil	Date Received:	09.11.2020 16:51
Lab Sample Id:	672397-007	Date Collected:	09.11.2020 14:20	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MRB	Date Prep:	09.14.2020 11:00	Basis:	Wet Weight
Seq Number:	3137106				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.14.2020 20:47	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.14.2020 20:47	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.14.2020 20:47	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	09.14.2020 20:47	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.14.2020 20:47	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.14.2020 20:47	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.14.2020 20:47	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	101	%	70-130	09.14.2020 20:47	
1,4-Difluorobenzene	540-36-3	104	%	70-130	09.14.2020 20:47	

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LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS08**	Matrix:	Soil	Date Received:	09.11.2020 16:51
Lab Sample Id:	672397-008	Date Collected:	09.11.2020 14:30	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.14.2020 12:05	Basis:	Wet Weight
Seq Number:	3137104				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**80.5**	10.0	mg/kg	09.14.2020 15:27		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.14.2020 10:30	Basis:	Wet Weight
Seq Number:	3137103				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	09.14.2020 15:35	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	09.14.2020 15:35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	09.14.2020 15:35	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	09.14.2020 15:35	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	09.14.2020 15:35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	114	%	70-135	09.14.2020 15:35	
o-Terphenyl	84-15-1	114	%	70-135	09.14.2020 15:35	

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LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS08**	Matrix:	Soil	Date Received:	09.11.2020 16:51
Lab Sample Id:	672397-008	Date Collected:	09.11.2020 14:30	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MRB	Date Prep:	09.14.2020 11:00	Basis:	Wet Weight
Seq Number:	3137106				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	09.14.2020 21:07	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	09.14.2020 21:07	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	09.14.2020 21:07	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	09.14.2020 21:07	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	09.14.2020 21:07	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	09.14.2020 21:07	U	1
Total BTEX		<0.00198	0.00198	mg/kg	09.14.2020 21:07	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	95	%	70-130	09.14.2020 21:07	
1,4-Difluorobenzene	540-36-3	103	%	70-130	09.14.2020 21:07	

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LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS09**	Matrix:	Soil	Date Received:	09.11.2020 16:51
Lab Sample Id:	672397-009	Date Collected:	09.11.2020 15:00	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.14.2020 12:05	Basis:	Wet Weight
Seq Number:	3137104				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**143**	10.1	mg/kg	09.14.2020 15:33		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.14.2020 10:30	Basis:	Wet Weight
Seq Number:	3137103				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	09.14.2020 15:55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	09.14.2020 15:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	09.14.2020 15:55	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	09.14.2020 15:55	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	09.14.2020 15:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-135	09.14.2020 15:55	
o-Terphenyl	84-15-1	109	%	70-135	09.14.2020 15:55	

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LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS09**	Matrix:	Soil	Date Received:	09.11.2020 16:51
Lab Sample Id:	672397-009	Date Collected:	09.11.2020 15:00	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MRB	Date Prep:	09.14.2020 11:00	Basis:	Wet Weight
Seq Number:	3137106				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.14.2020 21:28	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.14.2020 21:28	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.14.2020 21:28	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	09.14.2020 21:28	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.14.2020 21:28	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.14.2020 21:28	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.14.2020 21:28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	102	%	70-130	09.14.2020 21:28	
4-Bromofluorobenzene	460-00-4	99	%	70-130	09.14.2020 21:28	

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Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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QC Summary 672397

LT Environmental, Inc.

DKS Transport Truck Rollover

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3137104 — Matrix: Solid — Date Prep: 09.14.2020
MB Sample Id: 7711276-1-BLK — LCS Sample Id: 7711276-1-BKS — LCSD Sample Id: 7711276-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	258	103	258	103	90-110	0	20	mg/kg	09.14.2020 12:59	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3137104 — Matrix: Soil — Date Prep: 09.14.2020
Parent Sample Id: 672315-001 — MS Sample Id: 672315-001 S — MSD Sample Id: 672315-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	32.6	198	235	102	235	102	90-110	0	20	mg/kg	09.14.2020 13:16	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3137104 — Matrix: Soil — Date Prep: 09.14.2020
Parent Sample Id: 672397-001 — MS Sample Id: 672397-001 S — MSD Sample Id: 672397-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	270	199	471	101	470	101	90-110	0	20	mg/kg	09.14.2020 14:32	

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3137103 — Matrix: Solid — Date Prep: 09.11.2020
MB Sample Id: 7711226-1-BLK — LCS Sample Id: 7711226-1-BKS — LCSD Sample Id: 7711226-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	739	74	739	74	70-135	0	35	mg/kg	09.14.2020 10:12	
Diesel Range Organics (DRO)	<50.0	1000	816	82	824	82	70-135	1	35	mg/kg	09.14.2020 10:12	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	98		99		98		70-135	%	09.14.2020 10:12
o-Terphenyl	102		93		93		70-135	%	09.14.2020 10:12

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3137103 — Matrix: Solid — Date Prep: 09.11.2020
MB Sample Id: 7711226-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	09.14.2020 09:52	

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

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QC Summary 672397

LT Environmental, Inc.

DKS Transport Truck Rollover

Analytical Method: **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3137103 Matrix: Soil Date Prep: 09.11.2020
Parent Sample Id: 672315-001 MS Sample Id: 672315-001 S MSD Sample Id: 672315-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.3	1010	707	70	752	75	70-135	6	35	mg/kg	09.14.2020 11:13	
Diesel Range Organics (DRO)	<50.3	1010	783	78	841	84	70-135	7	35	mg/kg	09.14.2020 11:13	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	115		124		70-135	%	09.14.2020 11:13
o-Terphenyl	112		118		70-135	%	09.14.2020 11:13

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3137106 Matrix: Solid Date Prep: 09.14.2020
MB Sample Id: 7711274-1-BLK LCS Sample Id: 7711274-1-BKS LCSD Sample Id: 7711274-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0922	92	0.0927	93	70-130	1	35	mg/kg	09.14.2020 12:29	
Toluene	<0.00200	0.100	0.0872	87	0.0900	90	70-130	3	35	mg/kg	09.14.2020 12:29	
Ethylbenzene	<0.00200	0.100	0.0897	90	0.0912	91	71-129	2	35	mg/kg	09.14.2020 12:29	
m,p-Xylenes	<0.00400	0.200	0.178	89	0.183	92	70-135	3	35	mg/kg	09.14.2020 12:29	
o-Xylene	<0.00200	0.100	0.0938	94	0.0939	94	71-133	0	35	mg/kg	09.14.2020 12:29	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		97		98		70-130	%	09.14.2020 12:29
4-Bromofluorobenzene	102		91		95		70-130	%	09.14.2020 12:29

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3137106 Matrix: Soil Date Prep: 09.14.2020
Parent Sample Id: 672315-001 MS Sample Id: 672315-001 S MSD Sample Id: 672315-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.104	104	0.112	112	70-130	7	35	mg/kg	09.14.2020 13:10	
Toluene	<0.00200	0.100	0.0971	97	0.105	105	70-130	8	35	mg/kg	09.14.2020 13:10	
Ethylbenzene	<0.00200	0.100	0.101	101	0.109	109	71-129	8	35	mg/kg	09.14.2020 13:10	
m,p-Xylenes	<0.00401	0.200	0.205	103	0.218	108	70-135	6	35	mg/kg	09.14.2020 13:10	
o-Xylene	<0.00200	0.100	0.101	101	0.106	106	71-133	5	35	mg/kg	09.14.2020 13:10	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		101		70-130	%	09.14.2020 13:10
4-Bromofluorobenzene	93		98		70-130	%	09.14.2020 13:10

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

Chain of Custody

Work Order No: 672397

XENCO LABORATORIES

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)

www.xenco.com Page 1 of 1

Project Manager:	Dan Moir	Bill to: (if different)	
Company Name:	LT Environmental, Inc., Permian office	Company Name:	
Address:	3300 North A Street	Address:	
City, State ZIP:	Midland, TX 79705	City, State ZIP:	
Phone:	(432) 236-3849 Email:	slo@ltenv.com, dmoir@ltenv.com	

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting:Level II ☐ Level III ☐ ST/UST ☐ RRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	DKS Transport Truck Rollover	Turn Around	
Project Number:	104320001	Routine ☐	
P.O. Number:		Rush:	
Sampler's Name:	Spencer Lo	Due Date:	

SAMPLE RECEIPT				
Temp Blank:	Yes No	Wet Ice:	Yes No	
Temperature (°C):	0.4/0.2	Thermometer ID		
Received Intact:	Yes No	T-NM-007		
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No N/A	Total Containers:		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)
FS01	S	9/11/2020	1320	1.5'	1	X	X	X
FS02	S	9/11/2020	1330	1.5'	1	X	X	X
FS03	S	9/11/2020	1340	1.5'	1	X	X	X
FS04	S	9/11/2020	1350	1.5'	1	X	X	X
FS05	S	9/11/2020	1400	1.5'	1	X	X	X
FS06	S	9/11/2020	1410	0.5'	1	X	X	X
FS07	S	9/11/2020	1420	0.5'	1	X	X	X
FS08	S	9/11/2020	1430	0.5'	1	X	X	X
FS09	S	9/11/2020	1500	0.5'	1	X	X	X

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Comments

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
	Cloe Clifton	9.11.20 16:51	2		
			4		
			6		

Revised Date 051418 Rev. 2018.1

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 09.11.2020 04.51.00 PM

Work Order #: 672397

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	.2	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**	
#5 Custody Seals intact on sample bottles?	**Yes**	
#6*Custody Seals Signed and dated?	**Yes**	
#7 *Chain of Custody present?	**Yes**	
#8 Any missing/extra samples?	**No**	
#9 Chain of Custody signed when relinquished/ received?	**Yes**	
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**	
#11 Container label(s) legible and intact?	**Yes**	
#12 Samples in proper container/ bottle?	**Yes**	Samples received in bulk containers.
#13 Samples properly preserved?	**Yes**	
#14 Sample container(s) intact?	**Yes**	
#15 Sufficient sample amount for indicated test(s)?	**Yes**	
#16 All samples received within hold time?	**Yes**	
#17 Subcontract of sample(s)?	**No**	
#18 Water VOC samples have zero headspace?	**N/A**	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Cloe Clifton Date: 09.11.2020

Checklist reviewed by: Jessica Kramer Date: 09.14.2020

Jessica Kramer

eurofins | Environment Testing Xenco

Certificate of Analysis Summary 673572

LT Environmental, Inc., Arvada, CO

Project Name: DKS Transport Truck Rollover

Project Id: 104320001
Contact: Dan Moir
Project Location:

Date Received in Lab: Thu 09.24.2020 16:50
Report Date: 09.29.2020 10:41
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	673572-001		673572-002		673572-003		673572-004		673572-005		673572-006	
	Field Id:	FS01		FS02		FS03		FS04		FS05		FS06	
	Depth:	1.5- ft		1.5- ft		1.5- ft		1.5- ft		1.0- ft		1.0- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	09.24.2020 15:20		09.24.2020 15:10		09.24.2020 15:00		09.24.2020 14:50		09.24.2020 14:40		09.24.2020 14:30	
BTEX by EPA 8021B	***Extracted:***	09.25.2020 15:39		09.25.2020 15:39		09.25.2020 15:39		09.25.2020 15:39		09.25.2020 15:39		09.25.2020 16:43	
	Analyzed:	09.26.2020 11:23		09.26.2020 11:46		09.26.2020 12:08		09.26.2020 12:30		09.26.2020 12:53		09.26.2020 08:39	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00201	0.00201	<0.00199	0.00199	<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00200	0.00200
Toluene		<0.00201	0.00201	<0.00199	0.00199	<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00200	0.00200
Ethylbenzene		<0.00201	0.00201	<0.00199	0.00199	<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00200	0.00200
m,p-Xylenes		<0.00402	0.00402	<0.00398	0.00398	<0.00401	0.00401	<0.00398	0.00398	<0.00398	0.00398	<0.00399	0.00399
o-Xylene		<0.00201	0.00201	<0.00199	0.00199	<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00200	0.00200
Total Xylenes		<0.00201	0.00201	<0.00199	0.00199	<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00200	0.00200
Total BTEX		<0.00201	0.00201	<0.00199	0.00199	<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00200	0.00200
Chloride by EPA 300	***Extracted:***	09.25.2020 15:09		09.25.2020 15:09		09.25.2020 15:09		09.25.2020 15:09		09.25.2020 15:09		09.25.2020 15:09	
	Analyzed:	09.25.2020 15:19		09.25.2020 15:36		09.25.2020 15:41		09.25.2020 15:47		09.25.2020 15:55		09.25.2020 16:19	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		182	10.0	98.6	9.92	166	9.90	546	9.94	223	10.0	71.5	10.0
TPH by SW8015 Mod	***Extracted:***	09.25.2020 10:30		09.25.2020 10:30		09.25.2020 10:30		09.25.2020 10:30		09.25.2020 10:30		09.25.2020 10:30	
	Analyzed:	09.25.2020 14:21		09.25.2020 14:42		09.25.2020 15:22		09.25.2020 15:42		09.25.2020 16:02		09.25.2020 16:23	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<50.1	50.1	<50.2	50.2	<50.3	50.3	<49.8	49.8	<50.3	50.3	<50.0	50.0
Diesel Range Organics (DRO)		<50.1	50.1	<50.2	50.2	<50.3	50.3	<49.8	49.8	<50.3	50.3	<50.0	50.0
Motor Oil Range Hydrocarbons (MRO)		<50.1	50.1	<50.2	50.2	<50.3	50.3	<49.8	49.8	<50.3	50.3	<50.0	50.0
Total GRO-DRO		<50.1	50.1	<50.2	50.2	<50.3	50.3	<49.8	49.8	<50.3	50.3	<50.0	50.0
Total TPH		<50.1	50.1	<50.2	50.2	<50.3	50.3	<49.8	49.8	<50.3	50.3	<50.0	50.0

BRL - Below Reporting Limit

Jessica Kramer

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Certificate of Analysis Summary 673572

LT Environmental, Inc., Arvada, CO

Project Name: DKS Transport Truck Rollover

Project Id: 104320001
Contact: Dan Moir
Project Location:

Date Received in Lab: Thu 09.24.2020 16:50
Report Date: 09.29.2020 10:41
Project Manager: Jessica Kramer

Analysis Requested											
	Lab Id:	673572-007		673572-008		673572-009					
	Field Id:	FS07		FS08		FS09					
	Depth:	0.5- ft		0.5- ft		1.5- ft					
	Matrix:	SOIL		SOIL		SOIL					
	Sampled:	09.24.2020 14:20		09.24.2020 14:10		09.24.2020 14:00					
BTEX by EPA 8021B	***Extracted:***	09.28.2020 10:07		09.28.2020 10:07		09.28.2020 10:07					
	Analyzed:	09.28.2020 18:39		09.28.2020 19:02		09.28.2020 19:24					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Benzene		<0.00201	0.00201	<0.00202	0.00202	<0.00202	0.00202				
Toluene		<0.00201	0.00201	<0.00202	0.00202	<0.00202	0.00202				
Ethylbenzene		<0.00201	0.00201	<0.00202	0.00202	<0.00202	0.00202				
m,p-Xylenes		<0.00402	0.00402	<0.00404	0.00404	<0.00404	0.00404				
o-Xylene		<0.00201	0.00201	<0.00202	0.00202	<0.00202	0.00202				
Total Xylenes		<0.00201	0.00201	<0.00202	0.00202	<0.00202	0.00202				
Total BTEX		<0.00201	0.00201	<0.00202	0.00202	<0.00202	0.00202				
Chloride by EPA 300	***Extracted:***	09.25.2020 15:09		09.25.2020 15:09		09.25.2020 15:09					
	Analyzed:	09.25.2020 16:24		09.25.2020 16:30		09.25.2020 16:36					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		161	9.94	122	9.92	25.0	10.0				
TPH by SW8015 Mod	***Extracted:***	09.25.2020 10:30		09.25.2020 10:30		09.25.2020 10:30					
	Analyzed:	09.25.2020 16:43		09.25.2020 17:03		09.25.2020 17:23					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		<50.2	50.2	<50.3	50.3	<50.1	50.1				
Diesel Range Organics (DRO)		<50.2	50.2	<50.3	50.3	<50.1	50.1				
Motor Oil Range Hydrocarbons (MRO)		<50.2	50.2	<50.3	50.3	<50.1	50.1				
Total GRO-DRO		<50.2	50.2	<50.3	50.3	<50.1	50.1				
Total TPH		<50.2	50.2	<50.3	50.3	<50.1	50.1				

BRL - Below Reporting Limit

Jessica Kramer

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Analytical Report 673572

for

LT Environmental, Inc.

Project Manager: Dan Moir

DKS Transport Truck Rollover

104320001

09.29.2020

Collected By: Client

1089 N Canal Street
Carlsbad, NM 88220

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)

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09.29.2020

Project Manager: **Dan Moir**
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, CO 80003

Reference: Eurofins Xenco, LLC Report No(s): **673572**
DKS Transport Truck Rollover
Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 673572. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 673572 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer

Jessica Kramer
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

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Sample Cross Reference 673572

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS01	S	09.24.2020 15:20	1.5 ft	673572-001
FS02	S	09.24.2020 15:10	1.5 ft	673572-002
FS03	S	09.24.2020 15:00	1.5 ft	673572-003
FS04	S	09.24.2020 14:50	1.5 ft	673572-004
FS05	S	09.24.2020 14:40	1.0 ft	673572-005
FS06	S	09.24.2020 14:30	1.0 ft	673572-006
FS07	S	09.24.2020 14:20	0.5 ft	673572-007
FS08	S	09.24.2020 14:10	0.5 ft	673572-008
FS09	S	09.24.2020 14:00	1.5 ft	673572-009

CASE NARRATIVE

eurofins | Environment Testing Xenco

Client Name: LT Environmental, Inc.

Project Name: DKS Transport Truck Rollover

Project ID: *104320001*
Work Order Number(s): *673572*

Report Date: *09.29.2020*
Date Received: *09.24.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

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Certificate of Analytical Results 673572

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS01**	Matrix:	Soil	Date Received:	09.24.2020 16:50
Lab Sample Id:	673572-001	Date Collected:	09.24.2020 15:20	Sample Depth:	1.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.25.2020 15:09	Basis:	Wet Weight
Seq Number:	3138248				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**182**	10.0	mg/kg	09.25.2020 15:19		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.25.2020 10:30	Basis:	Wet Weight
Seq Number:	3138171				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	09.25.2020 14:21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	09.25.2020 14:21	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	09.25.2020 14:21	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	09.25.2020 14:21	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	09.25.2020 14:21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	120	%	70-135	09.25.2020 14:21	
o-Terphenyl	84-15-1	117	%	70-135	09.25.2020 14:21	

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Certificate of Analytical Results 673572

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS01**	Matrix:	Soil	Date Received:	09.24.2020 16:50
Lab Sample Id:	673572-001	Date Collected:	09.24.2020 15:20	Sample Depth:	1.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.25.2020 15:39	Basis:	Wet Weight
Seq Number:	3138238				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	09.26.2020 11:23	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	09.26.2020 11:23	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	09.26.2020 11:23	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	09.26.2020 11:23	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	09.26.2020 11:23	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	09.26.2020 11:23	U	1
Total BTEX		<0.00201	0.00201	mg/kg	09.26.2020 11:23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	120	%	70-130	09.26.2020 11:23	
1,4-Difluorobenzene	540-36-3	106	%	70-130	09.26.2020 11:23	

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Certificate of Analytical Results 673572

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS02**	Matrix:	Soil	Date Received:	09.24.2020 16:50
Lab Sample Id:	673572-002	Date Collected:	09.24.2020 15:10	Sample Depth:	1.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.25.2020 15:09	Basis:	Wet Weight
Seq Number:	3138248				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**98.6**	9.92	mg/kg	09.25.2020 15:36		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.25.2020 10:30	Basis:	Wet Weight
Seq Number:	3138171				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	09.25.2020 14:42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	09.25.2020 14:42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	09.25.2020 14:42	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	09.25.2020 14:42	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	09.25.2020 14:42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	122	%	70-135	09.25.2020 14:42	
o-Terphenyl	84-15-1	126	%	70-135	09.25.2020 14:42	

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Sample Id:	**FS02**	Matrix:	Soil	Date Received:	09.24.2020 16:50
Lab Sample Id:	673572-002	Date Collected:	09.24.2020 15:10	Sample Depth:	1.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.25.2020 15:39	Basis:	Wet Weight
Seq Number:	3138238				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	09.26.2020 11:46	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	09.26.2020 11:46	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	09.26.2020 11:46	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	09.26.2020 11:46	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	09.26.2020 11:46	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	09.26.2020 11:46	U	1
Total BTEX		<0.00199	0.00199	mg/kg	09.26.2020 11:46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	104	%	70-130	09.26.2020 11:46	
4-Bromofluorobenzene	460-00-4	116	%	70-130	09.26.2020 11:46	

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Sample Id: **FS03** Matrix: Soil Date Received:09.24.2020 16:50

Lab Sample Id: 673572-003 Date Collected: 09.24.2020 15:00 Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: MAB % Moisture:

Analyst: MAB Date Prep: 09.25.2020 15:09 Basis: Wet Weight

Seq Number: 3138248

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**166**	9.90	mg/kg	09.25.2020 15:41		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: DTH % Moisture:

Analyst: DTH Date Prep: 09.25.2020 10:30 Basis: Wet Weight

Seq Number: 3138171

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	09.25.2020 15:22	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	09.25.2020 15:22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	09.25.2020 15:22	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	09.25.2020 15:22	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	09.25.2020 15:22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	124	%	70-135	09.25.2020 15:22	
o-Terphenyl	84-15-1	122	%	70-135	09.25.2020 15:22	

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Sample Id:	**FS03**	Matrix:	Soil	Date Received:	09.24.2020 16:50
Lab Sample Id:	673572-003	Date Collected:	09.24.2020 15:00	Sample Depth:	1.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.25.2020 15:39	Basis:	Wet Weight
Seq Number:	3138238				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.26.2020 12:08	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.26.2020 12:08	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.26.2020 12:08	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	09.26.2020 12:08	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.26.2020 12:08	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.26.2020 12:08	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.26.2020 12:08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	120	%	70-130	09.26.2020 12:08	
1,4-Difluorobenzene	540-36-3	106	%	70-130	09.26.2020 12:08	

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Sample Id:	**FS04**	Matrix:	Soil	Date Received:	09.24.2020 16:50
Lab Sample Id:	673572-004	Date Collected:	09.24.2020 14:50	Sample Depth:	1.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.25.2020 15:09	Basis:	Wet Weight
Seq Number:	3138248				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**546**	9.94	mg/kg	09.25.2020 15:47		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.25.2020 10:30	Basis:	Wet Weight
Seq Number:	3138171				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	09.25.2020 15:42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	09.25.2020 15:42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	09.25.2020 15:42	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	09.25.2020 15:42	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	09.25.2020 15:42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	122	%	70-135	09.25.2020 15:42	
o-Terphenyl	84-15-1	127	%	70-135	09.25.2020 15:42	

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Sample Id:	**FS04**	Matrix:	Soil	Date Received:	09.24.2020 16:50
Lab Sample Id:	673572-004	Date Collected:	09.24.2020 14:50	Sample Depth:	1.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.25.2020 15:39	Basis:	Wet Weight
Seq Number:	3138238				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	09.26.2020 12:30	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	09.26.2020 12:30	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	09.26.2020 12:30	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	09.26.2020 12:30	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	09.26.2020 12:30	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	09.26.2020 12:30	U	1
Total BTEX		<0.00199	0.00199	mg/kg	09.26.2020 12:30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	122	%	70-130	09.26.2020 12:30	
1,4-Difluorobenzene	540-36-3	104	%	70-130	09.26.2020 12:30	

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Sample Id:	**FS05**	Matrix:	Soil	Date Received:	09.24.2020 16:50
Lab Sample Id:	673572-005	Date Collected:	09.24.2020 14:40	Sample Depth:	1.0 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.25.2020 15:09	Basis:	Wet Weight
Seq Number:	3138248				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**223**	10.0	mg/kg	09.25.2020 15:55		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.25.2020 10:30	Basis:	Wet Weight
Seq Number:	3138171				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	09.25.2020 16:02	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	09.25.2020 16:02	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	09.25.2020 16:02	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	09.25.2020 16:02	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	09.25.2020 16:02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	09.25.2020 16:02	
o-Terphenyl	84-15-1	122	%	70-135	09.25.2020 16:02	

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Sample Id:	**FS05**	Matrix:	Soil	Date Received:	09.24.2020 16:50
Lab Sample Id:	673572-005	Date Collected:	09.24.2020 14:40	Sample Depth:	1.0 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.25.2020 15:39	Basis:	Wet Weight
Seq Number:	3138238				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	09.26.2020 12:53	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	09.26.2020 12:53	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	09.26.2020 12:53	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	09.26.2020 12:53	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	09.26.2020 12:53	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	09.26.2020 12:53	U	1
Total BTEX		<0.00199	0.00199	mg/kg	09.26.2020 12:53	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	103	%	70-130	09.26.2020 12:53	
4-Bromofluorobenzene	460-00-4	115	%	70-130	09.26.2020 12:53	

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Sample Id:	**FS06**	Matrix:	Soil	Date Received:	09.24.2020 16:50
Lab Sample Id:	673572-006	Date Collected:	09.24.2020 14:30	Sample Depth:	1.0 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.25.2020 15:09	Basis:	Wet Weight
Seq Number:	3138248				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**71.5**	10.0	mg/kg	09.25.2020 16:19		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.25.2020 10:30	Basis:	Wet Weight
Seq Number:	3138171				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	09.25.2020 16:23	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	09.25.2020 16:23	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	09.25.2020 16:23	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	09.25.2020 16:23	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	09.25.2020 16:23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-135	09.25.2020 16:23	
o-Terphenyl	84-15-1	110	%	70-135	09.25.2020 16:23	

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Sample Id:	**FS06**	Matrix:	Soil	Date Received:	09.24.2020 16:50
Lab Sample Id:	673572-006	Date Collected:	09.24.2020 14:30	Sample Depth:	1.0 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.25.2020 16:43	Basis:	Wet Weight
Seq Number:	3138239				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.26.2020 08:39	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.26.2020 08:39	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.26.2020 08:39	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	09.26.2020 08:39	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.26.2020 08:39	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.26.2020 08:39	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.26.2020 08:39	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	102	%	70-130	09.26.2020 08:39	
4-Bromofluorobenzene	460-00-4	85	%	70-130	09.26.2020 08:39	

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Sample Id:	**FS07**	Matrix:	Soil	Date Received:	09.24.2020 16:50
Lab Sample Id:	673572-007	Date Collected:	09.24.2020 14:20	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.25.2020 15:09	Basis:	Wet Weight
Seq Number:	3138248				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**161**	9.94	mg/kg	09.25.2020 16:24		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.25.2020 10:30	Basis:	Wet Weight
Seq Number:	3138171				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	09.25.2020 16:43	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	09.25.2020 16:43	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	09.25.2020 16:43	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	09.25.2020 16:43	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	09.25.2020 16:43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-135	09.25.2020 16:43	
o-Terphenyl	84-15-1	115	%	70-135	09.25.2020 16:43	

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Sample Id:	**FS07**	Matrix:	Soil	Date Received:	09.24.2020 16:50
Lab Sample Id:	673572-007	Date Collected:	09.24.2020 14:20	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.28.2020 10:07	Basis:	Wet Weight
Seq Number:	3138297				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	09.28.2020 18:39	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	09.28.2020 18:39	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	09.28.2020 18:39	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	09.28.2020 18:39	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	09.28.2020 18:39	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	09.28.2020 18:39	U	1
Total BTEX		<0.00201	0.00201	mg/kg	09.28.2020 18:39	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	117	%	70-130	09.28.2020 18:39	
1,4-Difluorobenzene	540-36-3	107	%	70-130	09.28.2020 18:39	

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Sample Id:	**FS08**	Matrix:	Soil	Date Received:	09.24.2020 16:50
Lab Sample Id:	673572-008	Date Collected:	09.24.2020 14:10	Sample Depth:	0.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.25.2020 15:09	Basis:	Wet Weight
Seq Number:	3138248				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**122**	9.92	mg/kg	09.25.2020 16:30		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.25.2020 10:30	Basis:	Wet Weight
Seq Number:	3138171				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	09.25.2020 17:03	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	09.25.2020 17:03	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	09.25.2020 17:03	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	09.25.2020 17:03	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	09.25.2020 17:03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	09.25.2020 17:03	
o-Terphenyl	84-15-1	119	%	70-135	09.25.2020 17:03	

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Sample Id:	**FS08**	Matrix:	Soil	Date Received:	09.24.2020 16:50
Lab Sample Id:	673572-008	Date Collected:	09.24.2020 14:10	Sample Depth:	0.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.28.2020 10:07	Basis:	Wet Weight
Seq Number:	3138297				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	09.28.2020 19:02	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	09.28.2020 19:02	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	09.28.2020 19:02	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	09.28.2020 19:02	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	09.28.2020 19:02	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	09.28.2020 19:02	U	1
Total BTEX		<0.00202	0.00202	mg/kg	09.28.2020 19:02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	111	%	70-130	09.28.2020 19:02	
1,4-Difluorobenzene	540-36-3	99	%	70-130	09.28.2020 19:02	

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Sample Id:	**FS09**	Matrix:	Soil	Date Received:	09.24.2020 16:50
Lab Sample Id:	673572-009	Date Collected:	09.24.2020 14:00	Sample Depth:	1.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.25.2020 15:09	Basis:	Wet Weight
Seq Number:	3138248				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**25.0**	10.0	mg/kg	09.25.2020 16:36		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	09.25.2020 10:30	Basis:	Wet Weight
Seq Number:	3138171				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	09.25.2020 17:23	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	09.25.2020 17:23	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	09.25.2020 17:23	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	09.25.2020 17:23	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	09.25.2020 17:23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	120	%	70-135	09.25.2020 17:23	
o-Terphenyl	84-15-1	119	%	70-135	09.25.2020 17:23	

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Certificate of Analytical Results 673572

LT Environmental, Inc., Arvada, CO

DKS Transport Truck Rollover

Sample Id:	**FS09**	Matrix:	Soil	Date Received:	09.24.2020 16:50
Lab Sample Id:	673572-009	Date Collected:	09.24.2020 14:00	Sample Depth:	1.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	09.28.2020 10:07	Basis:	Wet Weight
Seq Number:	3138297				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	09.28.2020 19:24	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	09.28.2020 19:24	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	09.28.2020 19:24	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	09.28.2020 19:24	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	09.28.2020 19:24	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	09.28.2020 19:24	U	1
Total BTEX		<0.00202	0.00202	mg/kg	09.28.2020 19:24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	104	%	70-130	09.28.2020 19:24	
4-Bromofluorobenzene	460-00-4	125	%	70-130	09.28.2020 19:24	

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Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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QC Summary 673572

LT Environmental, Inc.

DKS Transport Truck Rollover

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3138248 — Matrix: Solid — Date Prep: 09.25.2020
MB Sample Id: 7712181-1-BLK — LCS Sample Id: 7712181-1-BKS — LCSD Sample Id: 7712181-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	255	102	254	102	90-110	0	20	mg/kg	09.25.2020 15:08	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3138248 — Matrix: Soil — Date Prep: 09.25.2020
Parent Sample Id: 673572-001 — MS Sample Id: 673572-001 S — MSD Sample Id: 673572-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	182	201	393	105	393	105	90-110	0	20	mg/kg	09.25.2020 15:24	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3138248 — Matrix: Soil — Date Prep: 09.25.2020
Parent Sample Id: 673636-002 — MS Sample Id: 673636-002 S — MSD Sample Id: 673636-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<9.98	200	207	104	208	104	90-110	0	20	mg/kg	09.25.2020 16:52	

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3138171 — Matrix: Solid — Date Prep: 09.25.2020
MB Sample Id: 7712106-1-BLK — LCS Sample Id: 7712106-1-BKS — LCSD Sample Id: 7712106-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	891	89	853	85	70-135	4	35	mg/kg	09.25.2020 10:19	
Diesel Range Organics (DRO)	<50.0	1000	784	78	763	76	70-135	3	35	mg/kg	09.25.2020 10:19	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	87		126		125		70-135	%	09.25.2020 10:19
o-Terphenyl	92		125		126		70-135	%	09.25.2020 10:19

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3138171 — Matrix: Solid — Date Prep: 09.25.2020
MB Sample Id: 7712106-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	09.25.2020 09:59	

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

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QC Summary 673572

LT Environmental, Inc.

DKS Transport Truck Rollover

Analytical Method: **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3138171 Matrix: Soil Date Prep: 09.25.2020
Parent Sample Id: 673561-001 MS Sample Id: 673561-001 S MSD Sample Id: 673561-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<49.8	996	915	92	910	91	70-135	1	35	mg/kg	09.25.2020 11:19	
Diesel Range Organics (DRO)	<49.8	996	810	81	810	81	70-135	0	35	mg/kg	09.25.2020 11:19	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	135		131		70-135	%	09.25.2020 11:19
o-Terphenyl	134		130		70-135	%	09.25.2020 11:19

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3138238 Matrix: Solid Date Prep: 09.25.2020
MB Sample Id: 7712176-1-BLK LCS Sample Id: 7712176-1-BKS LCSD Sample Id: 7712176-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0987	99	0.103	103	70-130	4	35	mg/kg	09.26.2020 02:44	
Toluene	<0.00200	0.100	0.0947	95	0.0973	97	70-130	3	35	mg/kg	09.26.2020 02:44	
Ethylbenzene	<0.00200	0.100	0.0976	98	0.101	101	71-129	3	35	mg/kg	09.26.2020 02:44	
m,p-Xylenes	<0.00400	0.200	0.197	99	0.201	101	70-135	2	35	mg/kg	09.26.2020 02:44	
o-Xylene	<0.00200	0.100	0.0986	99	0.0988	99	71-133	0	35	mg/kg	09.26.2020 02:44	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		99		102		70-130	%	09.26.2020 02:44
4-Bromofluorobenzene	115		109		109		70-130	%	09.26.2020 02:44

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3138239 Matrix: Solid Date Prep: 09.25.2020
MB Sample Id: 7712177-1-BLK LCS Sample Id: 7712177-1-BKS LCSD Sample Id: 7712177-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.104	104	0.115	115	70-130	10	35	mg/kg	09.25.2020 22:35	
Toluene	<0.00200	0.100	0.100	100	0.110	110	70-130	10	35	mg/kg	09.25.2020 22:35	
Ethylbenzene	<0.00200	0.100	0.0933	93	0.102	102	71-129	9	35	mg/kg	09.25.2020 22:35	
m,p-Xylenes	<0.00400	0.200	0.188	94	0.205	103	70-135	9	35	mg/kg	09.25.2020 22:35	
o-Xylene	<0.00200	0.100	0.0933	93	0.101	101	71-133	8	35	mg/kg	09.25.2020 22:35	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		99		98		70-130	%	09.25.2020 22:35
4-Bromofluorobenzene	88		90		84		70-130	%	09.25.2020 22:35

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

QC Summary 673572

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LT Environmental, Inc.

DKS Transport Truck Rollover

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5035A
Seq Number: 3138297 — Matrix: Solid — Date Prep: 09.28.2020
MB Sample Id: 7712178-1-BLK — LCS Sample Id: 7712178-1-BKS — LCSD Sample Id: 7712178-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0905	91	0.0972	97	70-130	7	35	mg/kg	09.28.2020 10:23	
Toluene	<0.00200	0.100	0.0854	85	0.0900	90	70-130	5	35	mg/kg	09.28.2020 10:23	
Ethylbenzene	<0.00200	0.100	0.0860	86	0.0920	92	71-129	7	35	mg/kg	09.28.2020 10:23	
m,p-Xylenes	<0.00400	0.200	0.174	87	0.185	93	70-135	6	35	mg/kg	09.28.2020 10:23	
o-Xylene	<0.00200	0.100	0.0883	88	0.0959	96	71-133	8	35	mg/kg	09.28.2020 10:23	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		98		102		70-130	%	09.28.2020 10:23
4-Bromofluorobenzene	115		106		112		70-130	%	09.28.2020 10:23

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5035A
Seq Number: 3138238 — Matrix: Soil — Date Prep: 09.25.2020
Parent Sample Id: 673428-008 — MS Sample Id: 673428-008 S — MSD Sample Id: 673428-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.105	105	0.0983	98	70-130	7	35	mg/kg	09.26.2020 03:29	
Toluene	<0.00201	0.100	0.0978	98	0.0878	88	70-130	11	35	mg/kg	09.26.2020 03:29	
Ethylbenzene	<0.00201	0.100	0.105	105	0.0900	90	71-129	15	35	mg/kg	09.26.2020 03:29	
m,p-Xylenes	<0.00402	0.201	0.210	104	0.180	90	70-135	15	35	mg/kg	09.26.2020 03:29	
o-Xylene	<0.00201	0.100	0.104	104	0.0904	90	71-133	14	35	mg/kg	09.26.2020 03:29	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		96		70-130	%	09.26.2020 03:29
4-Bromofluorobenzene	114		111		70-130	%	09.26.2020 03:29

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5035A
Seq Number: 3138239 — Matrix: Soil — Date Prep: 09.25.2020
Parent Sample Id: 673399-027 — MS Sample Id: 673399-027 S — MSD Sample Id: 673399-027 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.128	128	0.127	127	70-130	1	35	mg/kg	09.25.2020 23:19	
Toluene	<0.00200	0.100	0.124	124	0.122	122	70-130	2	35	mg/kg	09.25.2020 23:19	
Ethylbenzene	<0.00200	0.100	0.115	115	0.113	113	71-129	2	35	mg/kg	09.25.2020 23:19	
m,p-Xylenes	<0.00400	0.200	0.232	116	0.228	114	70-135	2	35	mg/kg	09.25.2020 23:19	
o-Xylene	<0.00200	0.100	0.113	113	0.112	112	71-133	1	35	mg/kg	09.25.2020 23:19	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		99		70-130	%	09.25.2020 23:19
4-Bromofluorobenzene	89		95		70-130	%	09.25.2020 23:19

MS/MSD Percent Recovery — [D] = 100*(C-A) / B — LCS = Laboratory Control Sample — MS = Matrix Spike
Relative Percent Difference — RPD = 200* | (C-E) / (C+E) | — A = Parent Result — B = Spike Added
LCS/LCSD Recovery — [D] = 100 * (C) / [B] — C = MS/LCS Result — D = MSD/LCSD % Rec
Log Difference — Log Diff. = Log(Sample Duplicate) - Log(Original Sample) — E = MSD/LCSD Result

QC Summary 673572

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LT Environmental, Inc.

DKS Transport Truck Rollover

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A

Seq Number: 3138297 Matrix: Soil Date Prep: 09.28.2020

Parent Sample Id: 673636-001 MS Sample Id: 673636-001 S MSD Sample Id: 673636-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0965	97	0.0930	93	70-130	4	35	mg/kg	09.28.2020 12:27	
Toluene	<0.00200	0.100	0.0912	91	0.0900	90	70-130	1	35	mg/kg	09.28.2020 12:27	
Ethylbenzene	<0.00200	0.100	0.0987	99	0.0950	95	71-129	4	35	mg/kg	09.28.2020 12:27	
m,p-Xylenes	<0.00400	0.200	0.202	101	0.192	96	70-135	5	35	mg/kg	09.28.2020 12:27	
o-Xylene	<0.00200	0.100	0.0985	99	0.0960	96	71-133	3	35	mg/kg	09.28.2020 12:27	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		98		70-130	%	09.28.2020 12:27
4-Bromofluorobenzene	113		106		70-130	%	09.28.2020 12:27

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike

Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added

LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec

Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

Chain of Custody

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)
www.xenco.com

Work Order No: 673572

Page 1 of 1

Project Manager:	Dan Moir	Bill to: (if different)	
Company Name:	LT Environmental, Inc., Permian office	Company Name:	
Address:	3300 North A Street	Address:	
City, State ZIP:	Midland, TX 79705	City, State ZIP:	
Phone:	(432) 236-3849	Email:	slo@ltenv.com, dmoir@ltenv.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ ST/UST ☐ RRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	DKS Transport Truck Rollover	Turn Around	
Project Number:	10432D001	Routine	☑
P.O. Number:		Rush:	
Sampler's Name:	Spencer Lo	Due Date:	

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Temperature (°C):	3.6/3.4	Thermometer ID	TNH007
Received Intact:	(Yes) No		
Cooler Custody Seals:	Yes (No) N/A	Correction Factor:	-0.2
Sample Custody Seals:	Yes (No) N/A	Total Containers:	9

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)
FS01	S	9.24.20	1520	1.5'	1	X	X	X
FS02	S		1510	1.5'				
FS03	S		1500	1.5'				
FS04	S		1450	1.5'				
FS05	S		1440	1.0'				
FS06	S		1430	1.0'				
FS07	S		1420	0.5'				
FS08	S		1410	0.5'				
FS09	S		1400	1.5'				

ANALYSIS REQUEST

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Comments

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time		Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1			9/24/20 16:50	2			
3				4			
5				6			

Revised Date 051418 Rev. 2018.1

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 09.24.2020 04.50.00 PM

Work Order #: 673572

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	3.4	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**	
#5 Custody Seals intact on sample bottles?	**Yes**	
#6*Custody Seals Signed and dated?	**Yes**	
#7 *Chain of Custody present?	**Yes**	
#8 Any missing/extra samples?	**No**	
#9 Chain of Custody signed when relinquished/ received?	**Yes**	
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**	
#11 Container label(s) legible and intact?	**Yes**	
#12 Samples in proper container/ bottle?	**Yes**	Samples received in bulk containers.
#13 Samples properly preserved?	**Yes**	
#14 Sample container(s) intact?	**Yes**	
#15 Sufficient sample amount for indicated test(s)?	**Yes**	
#16 All samples received within hold time?	**Yes**	
#17 Subcontract of sample(s)?	**No**	
#18 Water VOC samples have zero headspace?	**N/A**	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Cloe Clifton Date: 09.25.2020

Checklist reviewed by: Jessica Kramer Date: 09.25.2020

Jessica Kramer

ATTACHMENT 4: PHOTOGRAPHIC LOG

PHOTOGRAPHIC LOG

Photograph 1: Northern view of release.

Photograph 2: Southern view of September 1st excavation.

Photograph 3: Southern view of September 11th excavation down to caliche.

Photograph 4: Northern view of September 24th hydrovac excavation.

ATTACHMENT : VSP Sampling Plans

VSP Sample Design Report for Using Stratified Sampling to Estimate the Population Proportion

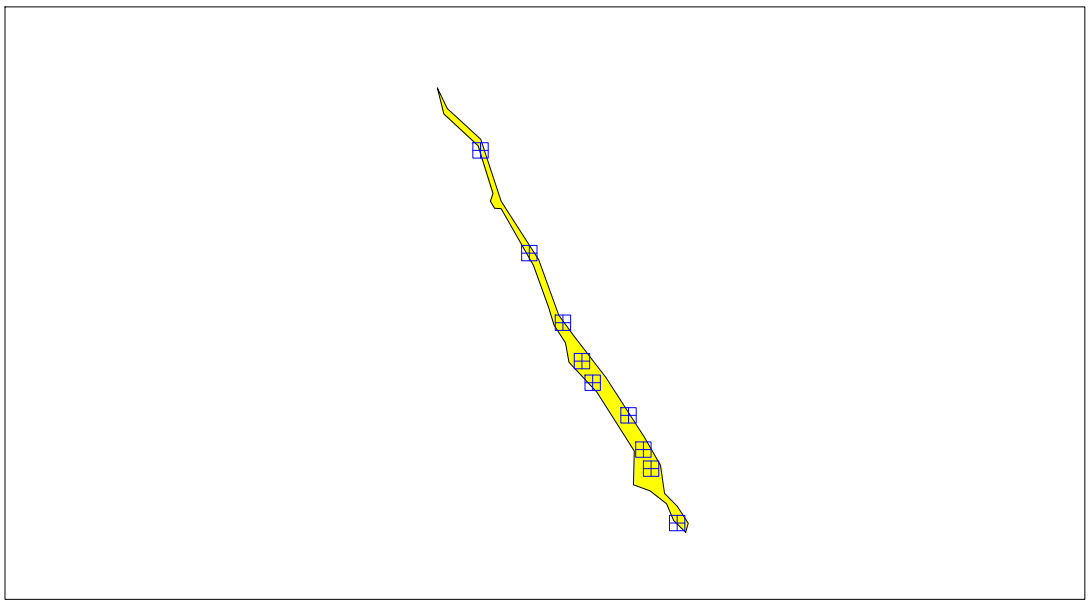
Summary

This report summarizes the stratified sampling design used, associated statistical assumptions, as well as general guidelines for conducting post-sampling data analysis. Sampling plan components presented here include how many sampling locations to choose and where within the sampling area to collect those samples. The type of medium to sample (i.e., soil, groundwater, etc.) and how to analyze the samples (in-situ, fixed laboratory, etc.) are addressed in other sections of the sampling plan. It is important to note that the decision for sample size calculation is determined for the combined strata, rather than any individual strata.

The following table summarizes the proportion stratified sampling design developed. A figure that shows sampling locations in the field and a table that lists sampling location coordinates are also provided below.

SUMMARY OF SAMPLING DESIGN	
Primary Objective of Design	Estimate the population proportion of all strata combined
Criteria for Determining Total Number of Samples	Achieve pre-specified precision of the estimated proportion for specified stratum costs, but no restriction on total costs
Sample Placement (Location) in the Field	Random sampling within grids within each stratum
Formula for calculating number of sampling locations	From Gilbert (1987, page 51)
Method for calculating number of sampling locations in each stratum	Optimal Allocation
Calculated total number of samples	9
Stratum 1	9
Total area of all strata	891.88 m^2
Total cost of sampling [a]	

[a] Including measurement analyses and fixed overhead costs. See the Cost of Sampling section for an explanation of the costs presented here.



Area: Area 1

X Coord	Y Coord	Label	Value	Type	Historical	Sample Area
-11600796.6066	3856084.9773			Random in Grid		
-11600807.2377	3856107.1434			Random in Grid		
-11600810.3285	3856114.8886			Random in Grid		
-11600816.4153	3856128.8201			Random in Grid		
-11600835.3214	3856150.8987			Random in Grid		
-11600830.9739	3856142.0953			Random in Grid		
-11600843.1128	3856166.4948			Random in Grid		
-11600856.7885	3856194.8614			Random in Grid		
-11600876.6038	3856236.6671			Random in Grid		

Primary Sampling Objective
The primary purpose of sampling at this site is to estimate the proportion for the entire site, i.e., for all strata combined, such that the estimated proportion has the minimum possible standard deviation under the condition that the sampling and measurement costs cannot exceed a specified amount. Preexisting information was used to divide the site into 1 non-overlapping strata that were expected to be more homogeneous internally than for the entire site (all strata combined). The expected variability of values within each stratum was estimated or approximated, and the stratum weights, W_h, were determined so that the total number of samples could be allocated appropriately among the strata.

Number of Total Samples: Calculation Equation and Inputs
The total number of samples is computed to achieve the pre-specified precision of the estimated population proportion for specified stratum costs, but no restriction on total costs. *Note that the calculation is for the total number of samples, i.e., for combined strata, rather than individual strata.*

The formula used to calculate the total number of samples is:

$$n = \frac{\left(\sum_{h=1}^{L} W_h \sqrt{P_h(1-P_h)}\sqrt{c_h}\right)\sum_{h=1}^{L}\frac{W_h\sqrt{P_h(1-P_h)}}{\sqrt{c_h}}}{V + \frac{1}{N}\sum_{h=1}^{L} W_h P_h(1-P_h)}$$

where
L is the number of strata, $h=1,2,...,L$,
P_h is the estimated proportion of measurements in stratum h,
$W_h = N_h / N$ is the weight associated with stratum h,
N_h is the total number of possible sampling locations (units) in stratum h,
N is the total number of possible units in all strata combined, $N = \sum_{h=1}^{L} N_h$
V is the pre-specified variance or precision, and
c_h is the cost of collecting and measuring a sample in stratum h.

The values of these inputs that result in the calculated number of sampling locations are:

Parameter	Stratum
	1
P_h	0.2
C_h	
W_h	891.883

Parameter	Input Value

V 1

Allocation of Samples to Strata
The total number of samples is allocated to the individual strata on an optimal basis using the formula:

$$n_h = n \frac{N_h \sqrt{P_h(1-P_h)} / \sqrt{c_h}}{\sum_{h=1}^{L} N_h \sqrt{P_h(1-P_h)} / \sqrt{c_h}}$$

where
n_h is the number of samples allocated to stratum h,
L is the number of strata,
N_h is the total number of units in stratum h,
P_h is the proportion in stratum h,
c_h is the cost per population unit in stratum h.

n is the total number of units sampled in all strata, $n = \sum_{h=1}^{L} n_h$

Using this formula, the number of samples allocated to each stratum is:

Stratum	Number of Samples
1	9
Total Samples	9

Method for Determining Sampling Locations
Five methods for determining sample locations are provided in VSP: 1) simple random sampling, 2) random sampling within grids, 3) systematic sampling with a random start, 4) systematic sampling with a fixed start and 5) adaptive grid sampling. One may use a different method for each stratum, based on the conceptual site model and decision to be made for a given stratum. For this site, sample locations were chosen using random sampling within grids in each stratum.

Locating the sample points using a random sampling within grids method combines appealing aspects of both the random and the systematic grid methods. It provides data that are separated by many distances, providing information about the spatial structure of the potential contamination. It also ensures good coverage of the entire site, although not as completely as if systematic grid sampling were performed.

Statistical Assumptions
The assumptions associated with the formulas for computing the number of samples are:
1. The estimated stratum proportions, P_h, are reasonable and representative of the stratum populations being sampled.
2. The sampling locations are selected using simple random sampling.
3. The stratum costs, C_h, and the fixed cost C_0, are accurate.

The first and third assumptions will be assessed in a post data collection analysis. The second assumption, although not strictly valid for strata where systematic grid sampling was used rather than simple random sampling, is not expected to significantly affect conclusions of the study because (1) the gridded sample locations were selected based on a random start and (2) any patterns of contamination in the field that may exist are not expected to coincide with the regularity of the grid sampling pattern.

Cost of Sampling
The total cost of the completed sampling program depends on several cost inputs, some of which are fixed, and others that are based on the number of samples collected and measured. Based on the numbers of samples determined above, the estimated total cost of sampling and analysis at this site is $5,500.00, which averages out to a per sample cost of $611.11. The following table summarizes the inputs and resulting cost estimates.

COST INFORMATION

Stratum	Samples	Collection Cost Per Sample	Analytic Cost Per Sample	Total Cost
1	9			
Total Samples:	**9**		**Subtotal:**	
			Fixed Startup Cost:	
			Grand Total:	

Recommended Data Analysis Activities

Post data collection activities generally follow those outlined in EPA's Guidance for Data Quality Assessment (EPA, 2000). The data analysts will become familiar with the context of the problem and goals for data collection and assessment. The data will be verified and validated before being subjected to statistical or other analyses. Graphical and analytical tools will be used to verify to the extent possible the assumptions of any statistical analyses that are performed as well as to achieve a general understanding of the data. The data will be assessed to determine whether they are adequate in both quality and quantity to support the primary objective of sampling.

Estimates for the proportion of the population values will be calculated using the formulas appropriate for stratified sampling; these formulas are found in EPA QA/G-5S (EPA, 2001). Results of the exploratory and quantitative assessments of the data will be reported, along with conclusions that may be supported by them.

VSP Sample Design Report for Using Stratified Sampling to Estimate the Population Mean

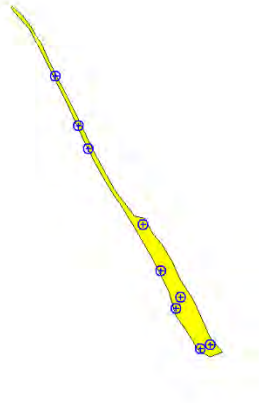
Summary

This report summarizes the stratified sampling design used, associated statistical assumptions, as well as general guidelines for conducting post-sampling data analysis. Sampling plan components presented here include how many sampling locations to choose and where within the sampling area to collect those samples. The type of medium to sample (i.e., soil, groundwater, etc.) and how to analyze the samples (in-situ, fixed laboratory, etc.) are addressed in other sections of the sampling plan. It is important to note that the decision for sample size calculation is determined for the combined strata, rather than any individual strata.

The following table summarizes the mean stratified sampling design developed. A figure that shows sampling locations in the field and a table that lists sampling location coordinates are also provided below.

SUMMARY OF SAMPLING DESIGN	
Primary Objective of Design	Estimate the population mean of all strata combined
Criteria for Determining Total Number of Samples	Minimize the variance of the estimated mean given a fixed total sampling and analysis cost
Sample Placement (Location) in the Field	Simple random sampling within each stratum
Formula for calculating number of sampling locations	From Gilbert (1987, equation 5.10, page 51)
Method for calculating number of sampling locations in each stratum	Optimal Allocation
Calculated total number of samples	9
Stratum 1	9
Total area of all strata	7200.51 ft^2
Total cost of sampling [a]	

[a] Including measurement analyses and fixed overhead costs. See the Cost of Sampling section for an explanation of the costs presented here.



Area: Area 1						
X Coord	Y Coord	Label	Value	Type	Historical	Sample Area
578753.9874	619877.7882			Random		
578580.6440	620156.3610			Random		
578704.7953	619929.5524			Random		
578658.1654	620048.0650			Random		
578566.8088	620189.0541			Random		
578740.1521	619872.3394			Random		
578534.0141	620258.5270			Random		
578683.9326	619982.6787			Random		
578712.0424	619945.8989			Random		

Primary Sampling Objective

The primary purpose of sampling at this site is to estimate the mean for the entire site, i.e., for all strata combined, such that the estimated mean has the minimum possible standard deviation under the condition that the sampling and measurement costs cannot exceed a specified amount. Preexisting information was used to divide the site into 1 non-overlapping strata that were expected to be more homogeneous internally than for the entire site (all strata combined). The expected variability of values within each stratum was estimated or approximated, and the stratum weights, W_h, were determined so that the total number of samples could be allocated appropriately among the strata.

Number of Total Samples: Calculation Equation and Inputs

The total number of samples is computed to maximize the precision of the estimated population mean for a pre-specified fixed total cost, C-C_0, of collecting and measuring samples. *Note that the calculation is for the total number of samples, i.e., for combined strata, rather than individual strata.*

The formula used to calculate the total number of samples is:

$$n = \frac{(C - c_0)\sum_{h=1}^{L} \frac{W_h s_h}{\sqrt{c_h}}}{\sum_{h=1}^{L} W_h s_h \sqrt{c_h}}$$

where

L is the number of strata, $h=1,2,...,L$,

S_h is the estimated standard deviation of the measured values in stratum h,

$W_h = N_h / N$ is the weight associated with stratum h,

N_h is the total number of possible sampling locations (units) in stratum h,

N is the total number of possible units in all strata combined, $N = \sum_{h=1}^{L} N_h$

C is the total sampling budget, $(C = c_o + \sum_{h=1}^{L} c_h n_h)$

c_0 is the fixed overhead cost,

c_h is the cost of collecting and measuring a sample in stratum h, and

n_h is the number of samples collected in stratum h.

The values of these inputs that result in the calculated number of sampling locations are:

Parameter	Stratum

	1
S_h	1
C_h	
W_h	7200.51

Parameter	Input Value
C	
C_0	

Allocation of Samples to Strata
The total number of samples is allocated to the individual strata on an optimal basis using the formula:

$$n_h = n \frac{N_h \sigma_h / \sqrt{c_h}}{\sum_{h=1}^{L} N_h \sigma_h / \sqrt{c_h}}$$

where
n_h is the number of samples allocated to stratum h,
L is the number of strata,
N_h is the total number of units in stratum h,
σ_h is the true population standard deviation for stratum h,
c_h is the cost per population unit in stratum h.

n is the total number of units sampled in all strata, $n = \sum_{h=1}^{L} n_h$

Using this formula, the number of samples allocated to each stratum is:

Stratum	Number of Samples
1	9
Total Samples	9

Method for Determining Sampling Locations
Five methods for determining sample locations are provided in VSP: 1) simple random sampling, 2) random sampling within grids, 3) systematic sampling with a random start, 4) systematic sampling with a fixed start and 5) adaptive grid sampling. One may use a different method for each stratum, based on the conceptual site model and decision to be made for a given stratum. For this site, sample locations were chosen using simple random sampling in each stratum.

Locating the sample points randomly within each stratum provides sampling locations that can, due to the random selection process, leave some areas of the stratum that are not well represented in the samples collected. This potential problem is not expected to result in inappropriate data for estimating the strata means or the entire site mean if the population values in each stratum do not vary greatly among different portions of the stratum. If major spatial patterns of population values are expected to occur within a stratum, then systematic grid sampling is usually a better choice for that stratum.

Statistical Assumptions
The assumptions associated with the formulas for computing the number of samples are:
1. The estimated stratum standard deviations, s_h, are reasonable and representative of the stratum populations being sampled.
2. The sampling locations are selected using simple random sampling.
3. The stratum costs, C_h, and the fixed cost C_0, are accurate.

The first and third assumptions will be assessed in a post data collection analysis. The second assumption is valid because simple random sampling is used.

Cost of Sampling

The total cost of the completed sampling program depends on several cost inputs, some of which are fixed, and others that are based on the number of samples collected and measured. Based on the numbers of samples determined above, the estimated total cost of sampling and analysis at this site is $5,500.00, which averages out to a per sample cost of $611.11. The following table summarizes the inputs and resulting cost estimates.

COST INFORMATION				
Stratum	**Samples**	**Collection Cost Per Sample**	**Analytic Cost Per Sample**	**Total Cost**
1	9			
Total Samples:	**9**		**Subtotal:**	
			Fixed Startup Cost:	
			Grand Total:	

Recommended Data Analysis Activities

Post data collection activities generally follow those outlined in EPA's Guidance for Data Quality Assessment (EPA, 2000). The data analysts will become familiar with the context of the problem and goals for data collection and assessment. The data will be verified and validated before being subjected to statistical or other analyses. Graphical and analytical tools will be used to verify to the extent possible the assumptions of any statistical analyses that are performed as well as to achieve a general understanding of the data. The data will be assessed to determine whether they are adequate in both quality and quantity to support the primary objective of sampling.

Estimates for the mean and standard deviation of the population values will be calculated using the formulas appropriate for stratified sampling; these formulas are found in EPA QA/G-5S (EPA, 2001). Results of the exploratory and quantitative assessments of the data will be reported, along with conclusions that may be supported by them.

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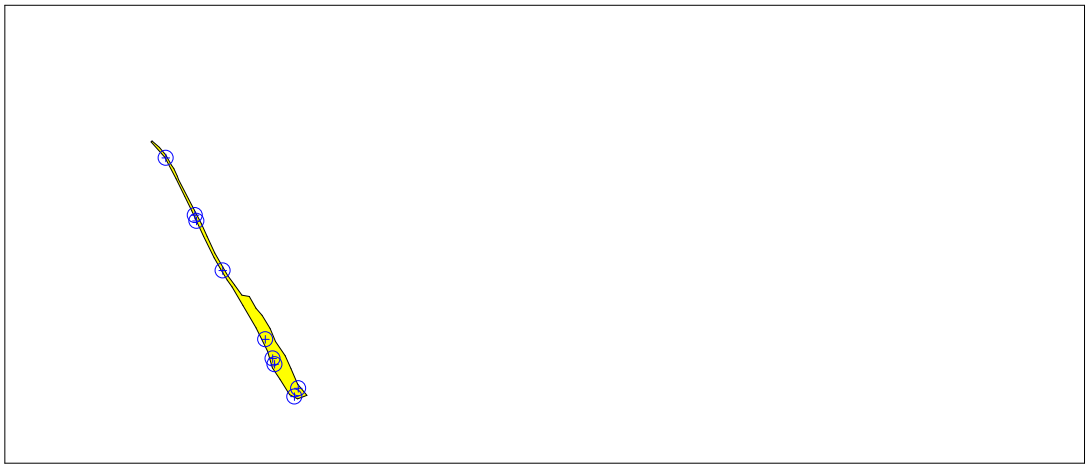
Formula for calculating number of sampling locations	From Gilbert (1987, equation 5.10, page 51)
Method for calculating number of sampling locations in each stratum	Optimal Allocation
Calculated total number of samples	9
Stratum 1	9
Total area of all strata	7200.51 ft^2
Total cost of sampling [a]	

[a] Including measurement analyses and fixed overhead costs. See the Cost of Sampling section for an explanation of the costs presented here.



Area: Area 1						
X Coord	**Y Coord**	**Label**	**Value**	**Type**	**Historical**	**Sample Area**
578558.3761	620203.4590			Random		
578708.2947	619927.6107			Random		

578753.9730	619881.2954			Random		
578608.7394	620108.1040			Random		
578746.9456	619864.9488			Random		
578690.7261	619975.2882			Random		
578554.8624	620214.3567			Random		
578704.7810	619938.5084			Random		
578498.6429	620324.6960			Random		

Primary Sampling Objective
The primary purpose of sampling at this site is to estimate the mean for the entire site, i.e., for all strata combined, such that the estimated mean has the minimum possible standard deviation under the condition that the sampling and measurement costs cannot exceed a specified amount. Preexisting information was used to divide the site into 1 non-overlapping strata that were expected to be more homogeneous internally than for the entire site (all strata combined). The expected variability of values within each stratum was estimated or approximated, and the stratum weights, W_h, were determined so that the total number of samples could be allocated appropriately among the strata.

Number of Total Samples: Calculation Equation and Inputs
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The formula used to calculate the total number of samples is:

$$n = \frac{(C - c_0)\sum_{h=1}^{L} \frac{W_h s_h}{\sqrt{c_h}}}{\sum_{h=1}^{L} W_h s_h \sqrt{c_h}}$$

where
L is the number of strata, $h=1,2,...,L$,
S_h is the estimated standard deviation of the measured values in stratum h,
$W_h = N_h / N$ is the weight associated with stratum h,
N_h is the total number of possible sampling locations (units) in stratum h,
N is the total number of possible units in all strata combined, $N = \sum_{h=1}^{L} N_h$
C is the total sampling budget, $(C = c_o + \sum_{h=1}^{L} c_h n_h)$
c_0 is the fixed overhead cost,
c_h is the cost of collecting and measuring a sample in stratum h, and
n_h is the number of samples collected in stratum h.

The values of these inputs that result in the calculated number of sampling locations are:

Parameter	Stratum
	1
S_h	1
C_h	
W_h	7200.51

Parameter	Input Value

C	
C_0	

Allocation of Samples to Strata
The total number of samples is allocated to the individual strata on an optimal basis using the formula:

$$n_h = n \frac{N_h \sigma_h / \sqrt{c_h}}{\sum_{h=1}^{L} N_h \sigma_h / \sqrt{c_h}}$$

where
n_h is the number of samples allocated to stratum h,
L is the number of strata,
N_h is the total number of units in stratum h,
σ_h is the true population standard deviation for stratum h,
c_h is the cost per population unit in stratum h.

n is the total number of units sampled in all strata, $n = \sum_{h=1}^{L} n_h$

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Stratum	Number of Samples
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Method for Determining Sampling Locations
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Locating the sample points randomly within each stratum provides sampling locations that can, due to the random selection process, leave some areas of the stratum that are not well represented in the samples collected. This potential problem is not expected to result in inappropriate data for estimating the strata means or the entire site mean if the population values in each stratum do not vary greatly among different portions of the stratum. If major spatial patterns of population values are expected to occur within a stratum, then systematic grid sampling is usually a better choice for that stratum.

Statistical Assumptions
The assumptions associated with the formulas for computing the number of samples are:
1. The estimated stratum standard deviations, s_h, are reasonable and representative of the stratum populations being sampled.
2. The sampling locations are selected using simple random sampling.
3. The stratum costs, C_h, and the fixed cost C_0, are accurate.

The first and third assumptions will be assessed in a post data collection analysis. The second assumption is valid because simple random sampling is used.

Cost of Sampling
The total cost of the completed sampling program depends on several cost inputs, some of which are fixed, and others that are based on the number of samples collected and measured. Based on the numbers of samples determined above, the estimated total cost of sampling and analysis at this site is $5,500.00, which averages out to a per sample cost of $611.11. The following table summarizes the inputs and resulting cost estimates.

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Total Samples:	**9**		**Subtotal:**	
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			Grand Total:	

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